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The Big Five Personality Traits and Social Support During the COVID-19 Pandemic: The Supporters, the Supported, and the Overlooked

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ABSTRACT

Social support can benefit its recipients and even its providers and is especially important in times of crisis. During the COVID-19 pandemic, support from society and personal networks became particularly crucial but individuals greatly differed in their support reception and provision. The Big Five personality traits may be key to explaining these interindividual differences: In this study, we investigated their impact on the support provided, received and additionally needed during the COVID-19 pandemic using data collected in October 2020 in a large German sample ($N = 3330$). The Big Five personality traits predicted support received from the state, civil society and the social network, with extraversion and openness emerging as positive and conscientiousness and emotional stability as negative predictors. The need for additional support was predicted positively by openness and negatively by conscientiousness, emotional stability and agreeableness. Support provision was predicted by all traits, positively by extraversion and openness and negatively by conscientiousness and emotional stability. Notably, agreeableness showed positive associations with *social* but negative associations with *societal* support reception and provision. Our findings highlight the importance of personality in social support processes during crises and the need to distinguish between different support sources. Please refer to the Supplementary Material section to find this article's Community and Social Impact Statement.

1 | Introduction

Social support constitutes one of the primary ways of resource distribution to individuals and households (Wellman and Wortley 1990) and is an integral part of individual and societal thriving. It has a tremendous positive impact on physical and mental health and is even associated with lower mortality rates (Marmot and Wilkinson 2006). Social support encourages healthy behaviours (e.g., Beets, Cardinal, and Alderman 2010; Bender et al. 2019; Soulakova et al. 2018), reduces the risk of depression (Lê et al. 2013; Mair, Diez Roux, and Morenoff 2010)

and is positively associated with civic outcomes like school engagement (Te Wang and Eccles 2012), lower crime recidivism (Cochran 2014) and social cohesion (Marmot and Wilkinson 2006). Furthermore, it is not just beneficial for its recipients but also for its providers, for example by reducing their stress levels (Inagaki and Orehek 2017). Who needs support, who receives it, and who provides it, is influenced by various socioeconomic and resource-related factors like education or income (Mitani 2014; Tinajero et al. 2015). From a psychological perspective, personality traits have emerged as important predictors of numerous support outcomes.

In times of disasters, social support is particularly crucial: It is linked to a better crisis response on a national level and helps communities handle these difficult situations more effectively (Helliwell, Huang, and Wang 2014). An important part of the civic disaster response are spontaneous volunteers who provide urgent support on the ground (Sauer et al. 2014; Twigg and Mosel 2017; Whittaker, McLennan, and Handmer 2015) as well as online (Starbird 2011). Emergencies creating a larger need for social support are often natural disasters but spontaneous volunteerism can also be found during other catastrophes like terrorist attacks (Swickert 2009) or financial crises (Sotiropoulos and Bourikos 2014). However, not everyone becomes a volunteer in times of need and individual responses to a disaster or national crisis vary starkly. This variation can be partially attributed to personality: For example, in a recent worldwide crisis—the COVID-19 pandemic—personality traits had a crucial influence on various behaviours, emotions and attitudes (e.g., Asselmann et al. 2020; Freitag and Hofstetter 2023).

The pandemic posed not only a serious health threat to individual citizens but created immense financial and social burdens on a societal level. Schools, shops and cultural institutions were shut down, borders were closed, and physical interactions were reduced to a minimum (Dostal 2020). Relief funds and financial support were deployed by governments to help companies and workers (Borbáth et al. 2021). However, states could not alleviate all burdens placed on their citizens, so additionally, other forms of social support were needed and emerged within civil society: Citizens provided instrumental and emotional help to each other, especially to vulnerable populations like the elderly and to essential workers (Borbáth et al. 2021; Finlay et al. 2022).

Social support during the pandemic was associated with more adaptive and active forms of coping (Agbaria and Mokh 2022), less feelings of loneliness (Jakimovski et al. 2022) and better mental health (Li et al. 2021). There is, however, evidence that social support was not distributed equally throughout society: The amount that individuals received depended in part on their social capital (Höltmann, Hutter, and Specht 2023), the strength of their social network ties (Carlsen, Toubøl, and Brincker 2021), and their current stage in the life course (Bertogg and Koos 2022). Additional drivers of unequal support reception in the pandemic—other than the socio-structural causes listed above—remain unknown.

In the present study, we analyse if personality is one of these additional drivers: Using data collected in October 2020 from a large German sample ($N = 3330$) and employing multivariate logistic regression analyses, we test if people with different Big Five personality trait levels differed in the social support they received from their own social circle, civil society and the state (Research Question 1), in the additional support they would have needed from other people or the state (Research Question 2) and in the social support they provided to their social circle or in civil society (Research Question 3).

1.1 | The Big Five Personality Traits

Personality traits describe 'the enduring configuration of characteristics and behavior that comprises an individual's unique adjustment to life' (American Psychological Association 2023).

These traits are relatively stable over time and across situations, and influence cognition, emotion and behaviour (John 2021). The Big Five personality traits describe the most fundamental personality differences and consist of (1) *extraversion*, which represents an individual's assertiveness, sociability and activity levels; (2) *conscientiousness*, which characterises organisation, responsibility and work ethic; (3) *agreeableness*, which represents a pro-social orientation including altruism, trust and modesty; (4) *openness to experience*, which represents a person's intellectual curiosity, artistic interest and creative imagination and (5) *emotional stability* (the opposite of neuroticism), which describes a person's self-confidence and ability to handle stress (John 2021).

1.2 | Social Support

Social support is defined as '[the] provision of resources intended to help a person' (Barańczuk 2019, 39). Often, the source of the support is a person's social network, but it may also be provided by the larger community (cf. Yu et al. 2020). Social support encompasses various forms of help: It can be of instrumental, emotional, informational, esteem-related or companionate nature (Gottlieb and Bergen 2010) and includes behaviours like helping to master emotional burdens, encouraging a sense of validation or providing resources like money, skills, labour, time, goods or information (Williams, Barclay, and Schmied 2004).

Social support may be provided through channels of varying formality, for example via official support groups like organisations and initiatives or via informal, personal connections (Gottlieb and Bergen 2010; Yu et al. 2020). People turn to different providers for different types of support (Lee and Fujita 2023) and the effect of received support can vary notably between the types of providers (e.g., Abbey, Abramis, and Caplan 1985; Wellman and Wortley 1990).

In our survey, we employed Barańczuk's (2019) broad definition of social support, including practical support like shopping or childcare, emotional support, symbolic support or financial support and asked participants whether they had received such kinds of support, whether they would have needed more of it and whether they themselves provided such kinds of support to others. In our research questions, we distinguish between social support received from and provided to one's own social connections (e.g., friends and neighbours), from and to providers in civil society (e.g., non-governmental organisations, strangers) and, as the most formal source, from the state. The latter only included pandemic-related financial support.

1.3 | Current State of Research

1.3.1 | Research Question 1: The Big Five Personality Traits and the Reception of Social Support

Personality may influence the reception of social support in multiple ways: First, through an *evocative interaction* (Pierce et al. 1997), in which personality traits might lead to more received support by causing behaviour that appears as needy to others and thereby evokes supportive behaviours in them. For example, an emotionally instable person's worries, depression

and emotional instability coupled with their generally less adaptive coping strategies (Agbaria and Mokh 2022) might evoke acts of support from their social networks. In contrast to this, high levels of openness to experience are associated with active and adaptive coping strategies, making open persons seem like creative and flexible problem solvers to others, which might evoke less supportive behaviour in them (Agbaria and Mokh 2022).

Second, the influence of personality on social support reception might be due to a *reactive interaction* (Pierce et al. 1997), in which personality traits impact responses to supportive behaviour, thereby reinforcing or weakening further support behaviour towards oneself. For example, a person with high trait levels of agreeableness is more likely to react appreciatively and affectionately to the support provided by others, thus potentially increasing the likelihood of future support provision to them (John 2021).

Lastly, an influence is possible through a *proactive interaction*, in which individuals shape their (social) environments actively according to their own personality traits. This individually shaped environment may in turn vary in its proneness or need to provide social support (Pierce et al. 1997; Swickert 2009). For example, highly conscientious individuals might create a personal environment that is highly organised, reliable and efficient, which in turn might benefit them during stressful situations and make them less likely to need and therefore receive support from others. Extraversion, on the other hand, might have a different effect: Extraverts create larger social networks around themselves and have more social capital (Tulin, Lancee, and Volker 2018). These larger networks might be able to provide more support compared with the smaller social networks of introverted individuals.

Empirical evidence supports this claim, as extraversion has been found to be closely and positively linked to support reception: It is positively associated with support received from colleagues at work (Bowling, Beehr, and Swader 2005), with seeking social support when faced with a threat (Pow, Lee-Baggley, and DeLongis 2017) and with the general reception of social support in both student and community samples (Swickert et al. 2002; Williamson and O'Hara 2017). It has also been found to be a positive predictor for social support during the COVID-19 pandemic in students (Agbaria and Mokh 2022). A meta-analysis on the link between the Big Five personality traits and the overall reception of social support identified only extraversion as a significant predictor (Barańczuk 2019), which might be explained by a mediation via social capital (Höltmann, Hutter, and Specht 2023; Okun, Pugliese, and Rook 2007; Tulin, Lancee, and Volker 2018).

Agreeableness has also been found to be positively associated with the reception of social support (Bowling, Beehr, and Swader 2005; DeViva et al. 2016), amongst others for student and patient samples during the COVID-19 pandemic (Agbaria and Mokh 2022; Jakimovski et al. 2022). This finding might be explained by highly agreeable individuals' tendency to reach out to others when confronted with problems or stressors (Ficková 2001; Hooker, Frazier, and Monahan 1994). However, other studies find this positive association only in a student subsample (Williamson and O'Hara 2017) or not at all (Barańczuk 2019).

Similarly, openness to new experiences has been found to have a positive effect on the reception of social support under non-pandemic (DeViva et al. 2016; Williamson and O'Hara 2017) and pandemic (Agbaria and Mokh 2022) circumstances, while other studies, however, report non-significant findings (e.g., Dehle and Landers 2005).

Findings regarding conscientiousness and the reception of social support are mixed. Some studies found that highly conscientious individuals receive more support (DeViva et al. 2016; Williamson and O'Hara 2017), and did so during the pandemic as well (Agbaria and Mokh 2022), others report that they receive less support (Dehle and Landers 2005; Lu and Argyle 1992). It is also conceivable that conscientious individuals received less support from others during the COVID-19 pandemic, as they may have been able to cope with the circumstances comparatively well by being proactive, careful and well organised.

Similarly, the relationship between emotional stability and the reception of social support is still unclear: While some authors report a positive association (Ayub 2015; DeViva et al. 2016), others find a negative connection (Dehle and Landers 2005) or report non-significant effects (Bowling, Beehr, and Swader 2005). The same pattern is found during the COVID-19 pandemic, with both positive (Jakimovski et al. 2022) and negative (Agbaria and Mokh 2022) associations being reported.

1.3.2 | Research Question 2: The Big Five Personality Traits and the Need for Additional Social Support

In our second analysis, we focus on those who were overlooked by social support systems: Which personality traits predict receiving insufficient support? Who needs more help from whom during crises like a pandemic?

In other contexts, emotional stability has been found to positively predict receiving sufficient support. Emotionally stable individuals are seeking less support from others (Ferrer et al. 2021; Lee-Baggley, Preece, and DeLongis 2005), and are more satisfied with their received support (Dehle and Landers 2005; Swickert 2009; Tong et al. 2004). This might be due to their use of more adaptive coping strategies, which makes them less dependent on help from others (Agbaria and Mokh 2022; Grant and Langan-Fox 2006; Hooker, Frazier, and Monahan 1994; Kawase et al. 2008).

Similarly, highly conscientious individuals are more satisfied with the support they receive (Dehle and Landers 2005; Tong et al. 2004). This also may be explained by their better coping abilities (Grant and Langan-Fox 2006; Karimzade and Besharat 2011; Penley and Tomaka 2002).

Extraverted individuals also tend to handle problems well on their own: They cope more actively and adaptively (Roesch, Wee, and Vaughn 2006), report more perceived control over tasks (Penley and Tomaka 2002), lower stressor exposure (Grant and Langan-Fox 2006) and higher levels of perceived support (Austin et al. 2020). However, the effect of extraversion on the satisfaction with one's social support may be of a much smaller magnitude than that of emotional stability and conscientiousness

(see Swickert 2009). Similarly, there is evidence that agreeableness might be positively related to seeking out social support as a coping mechanism as well as with the satisfaction with one's social support, but these effects may be relatively small (Penley and Tomaka 2002; Tong et al. 2004).

The effects of openness on the satisfaction with one's social support are still unresolved: On the one hand, highly open individuals report a higher responsibility for and control over tasks (Penley and Tomaka 2002), and might be better able to actively and effectively cope with stressful situations due to their flexibility and creativity (Agbaria and Mokh 2022). On the other hand, there is evidence that more open people may seek out and need more social support (Ferrer et al. 2021; Kawase et al. 2008) compared with those whore are less open.

1.3.3 | Research Question 3: The Big Five Personality Traits and the Provision of Social Support

For the third research question of this study, we analyse the relationship between the Big Five personality traits and the provision of social support during the pandemic: Which traits are able to predict whether a person provided support to their social network or to strangers? Both formal (providing help to strangers via organisations and initiatives) and informal (privately helping people outside the own household) forms of volunteering have been associated with personality traits in previous works.

Extraversion is positively associated with providing support to coworkers (Bowling, Beehr, and Swader 2005) and in the face of problems or threats (Pow, Lee-Baggley, and DeLongis 2017) and with support provision in elderly people (Baumel and Kelly 2019) and the general population (Bekkers 2005). It was furthermore found to be positively related to formal volunteering in the health sector (Omoto, Snyder, and Hackett 2010), the provision of social support by U.S. veterans (Na et al. 2022), informal, formal and online volunteering in a Swiss sample (Ackermann 2019) and the amount of informal volunteering in a Dutch sample (Ramaekers, Verbakel, and Kraaykamp 2022). A study analysing volunteering in the UK during the COVID-19 pandemic also reports a positive effect of extraversion on formal and informal forms (Mak and Fancourt 2022). Given their spontaneity, extraverts might have quickly adapted to this crisis situation, therefore being able to keep up their usually high volunteering rates in the pandemic as well (Whittaker, McLennan, and Handmer 2015).

Openness also predicted formal and informal volunteering in the United Kingdom during the pandemic (Mak and Fancourt 2022), which might be explained by open individuals' creativity and innovativeness that may have allowed them to better adapt to changing volunteering landscapes during this time of crisis (Whittaker, McLennan, and Handmer 2015). Under non-pandemic circumstances, open individuals have also been found to be more likely to provide support: Openness is a positive predictor for active participation in voluntary organisations (Bekkers 2005; Dinesen, Nørgaard, and Klemmensen 2014), volunteerism in U.S. college students (Carlo et al. 2005) and veterans (Na et al. 2022), and online volunteering in a Swiss sample (Ackermann 2019).

With regard to agreeableness, studies report either positive (Bowling, Beehr, and Swader 2005; Capra, Jiang, and Su 2021; Na et al. 2022) or non-significant (Bekkers 2005; Dinesen, Nørgaard, and Klemmensen 2014; Pow, Lee-Baggley, and DeLongis 2017; Ramaekers, Verbakel, and Kraaykamp 2022) findings. These mixed results might be explained by the divergent effects of agreeableness on different forms of volunteering, with informal volunteering being more positively affected than other forms (Ackermann 2019). During the pandemic, the strong communal orientation of agreeable persons could have led to conflicting outcomes: An agreeable person might either choose to protect their community by practising social distancing and isolating or choose to provide support to members in their community, even if that entailed a higher risk of infection and spreading the virus. Primary evidence from a UK-based study by Mak and Fancourt (2022) describes a positive relationship between agreeableness and neighbourhood, formal and social action volunteering during the COVID-19 pandemic.

Evidence regarding conscientiousness is mixed: A positive association with the provision of social support has been described in college students (Carlo et al. 2005) and veterans (Na et al. 2022). Others, however, find negative influences of conscientiousness on general (Bekkers 2005) and online volunteering (Ackermann 2019) or describe no significant effect (Dinesen, Nørgaard, and Klemmensen 2014; Omoto, Snyder, and Hackett 2010). As highly conscientious people potentially coped better during the pandemic, they might have had a higher capacity to provide support to others. This is reflected in the higher rates of neighbourhood volunteering found in a sample from the United Kingdom (Mak and Fancourt 2022).

The influence of emotional stability on the provision of social support is also still unclear. While some describe a positive relationship (Ackermann 2019; Bekkers 2005; Na et al. 2022) and even find a strong positive correlation between emotional stability and volunteering rates on a state level (McCann 2017), others report no significant influence (Bowling, Beehr, and Swader 2005; Carlo et al. 2005; Omoto, Snyder, and Hackett 2010) or a negative association (Dinesen, Nørgaard, and Klemmensen 2014). As the pandemic instigated more worries, stress and a lower mood in less emotionally stable persons (Asselmann et al. 2020; Rettew et al. 2021), they might have had a lower capacity to provide support to others. This proposition is reflected in a lower neighbourhood volunteering rate in a UK-based sample (Mak and Fancourt 2022).

1.4 | The Present Study

In this study, we examine the impact of the Big Five personality traits on social support in a German sample during the COVID-19 pandemic. Based on previous research as outlined above, we expect (1) that more extraverted, open and agreeable individuals are more likely to receive support, whereas conscientious individuals are less likely to receive support; (2) that less emotionally stable, less conscientious, and less agreeable individuals are at risk of receiving insufficient support; (3) that extraverted, open and agreeable individuals are more likely to provide social support. Additionally, we examine in exploratory analyses whether the source of support (social

or societal) plays a role in support processes during a crisis (c.f. Abbey, Abramis, and Caplan 1985; Lee and Fujita 2023; Wellman and Wortley 1990). To answer these research questions, we analyse data collected in the midst of the COVID-19 pandemic from a large ($N = 3330$) population representative sample in Germany.

With its design and methodology, our study is able to address several gaps in the existing literature: First and foremost, it provides data from a sociodemographically diverse sample about personality effects on support structures during a global crisis. For these pandemic circumstances, when support systems had to rapidly adapt to unconventional conditions and new demographics, it would be inappropriate to simply transfer existing findings. At the same time, in a crisis such as the COVID-19 pandemic, support is particularly crucial for individuals' well-being, making reliable data on its predictors all the more valuable.

To our knowledge, our study is also the first to analyse different facets of social support structures in a national crisis simultaneously, examining predictors of support reception as well as provision. It is thus able to provide a comprehensive overview of the personality effects on these support structures. It is, to our knowledge, also the first study to contrast the effects of the Big Five on support within the social circle, within civil society and from the state. We believe that our findings can be extrapolated to future crises and discuss their potential action implications in the discussion.

2 | Methods

2.1 | Sample

Data came from an online-access panel (cf. Höltmann, Hutter, and Specht 2023) collected via an external research agency (Bilendi) in October 2020 with a total of 3330 participants living in Germany. At that point in time, the COVID-19 pandemic had been going on for 7 months in Germany, with strict lockdown measures in March and April earlier that year, a relaxation of the containment measures over the summer, followed by a rapid peak of infection rates and the beginning of a second, lighter, lockdown phase in mid-October. Participants were asked to provide answers regarding their experiences and behaviours between the beginning of the pandemic until that moment (i.e., March to October 2020).

Potential participants were invited via e-mail. As a first step, they answered several sociodemographic quota questions (gender, age, state, education, income) and were screened out if the respective quota had already been filled. Additionally, to ensure the adherence to representative sampling quotas, participants were screened out if they were below 18 or above 69 years of age, if their gender was non-binary, and if they did not have a permanent residency in Germany. Sociodemographic and economic characteristics of the sample are shown in Table 1.

The study was conducted in accordance with the Declaration of Helsinki and approved by the responsible ethics committee prior

TABLE 1 | Sociodemographic sample characteristics.

Variable	Mean (*SD*)/*N* (%)
Age	44.44 (14.63) (Range: 18–69 Years)
Gender	
Male	1679 (50%)
Female	1651 (50%)
Education	
Low and medium education	2100 (63%)
High education	1230 (37%)
Income	
Strongly struggling financially	143 (4%)
Struggling financially	484 (15%)
Coping	1811 (54%)
Living comfortably	892 (27%)
Income change in pandemic	
Very negative	231 (7%)
Rather negative	817 (25%)
No change	1983 (60%)
Rather positive	182 (6%)
Very positive	77 (2%)
Region	
West Germany	2663 (80%)
East Germany	667 (20%)

Note: Total sample size is 3330.

to data collection. Before answering any of the survey questions, all participants gave informed consent.

2.2 | Measures

2.2.1 | Personality

The Big Five personality traits (extraversion, conscientiousness, openness, agreeableness and emotional stability) were assessed using the German version of the BFI-S (Gerlitz and Schupp 2005), a short version of the Big Five Inventory by John, Donahue, and Kentle (1991). It consists of three items for each trait (i.e., a total of 15 items) with a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The convergent validity of the BFI-S (when compared to the full Big Five Inventory or the NEO PI-R), its construct validity (when compared to related behaviours) and its test–retest reliability are acceptable (Donnellan and Lucas 2008; Gerlitz and Schupp 2005; Hahn, Gottschling, and Spinath 2012). As the heterogeneity of each trait is captured in few items, internal consistencies for each trait-subscale are moderate (Lang et al. 2011). In our study, internal consistencies were $\alpha = 0.71$ for extraversion, $\alpha = 0.67$ for conscientiousness, $\alpha = 0.71$ for

openness, $\alpha = 0.55$ for agreeableness and $\alpha = 0.71$ for emotional stability.

2.2.2 | Outcome Measures

To measure if support was received from one's personal social circle, we used two items: Participants were asked if they had received support from family members, friends or acquaintances and if they had received support from their neighbours. Participants answered on a binary scale, specifying 0 = 'no' or 1 = 'yes'. Item scores were combined as 0 = *no support received from either source* and 1 = *support received from at least one source*. The same procedure was used to measure support received from civil society. Here, one item asked about support received from initiatives, associations, or aid organisations and another asked about support received from people respondents did not previously know.

Financial support from the state was measured with one item, reading 'Have you received financial support from the state due to the consequences of the coronavirus crisis?' to which participants answered with 1 = 'yes, sufficiently', 2 = 'yes, but too late or too little', 3 = 'no, that was not necessary' or 4 = 'no, but I would have needed it'. The first two were combined as 1 = *support received*, whereas the last two answers were combined as 0 = *no support received*.

The same item was used to measure the need for additional financial support from the state. To do this, we combined answers 1 and 3 as *did not need more support* and answers 2 and 4 as *needed more support*. To measure the need for more non-financial support, we asked participants 'Would you have needed more support from other people?' (with answer choices being: 1 = 'no', 2 = 'partly', 3 = 'a bit more' and 4 = 'a lot more'). To also create a binary variable, we categorised the answers 'a bit more' and 'a lot more' as 1 = *needed more support from others* and the answers 'no' and 'partly' as 0 = *did not need more support from others* (cf. Höltmann, Hutter, and Specht 2023).

To measure support provided to one's own social circle, participants indicated (again on a binary 'yes' or 'no' scale) if they had provided support to friends or family members and if they had provided support to neighbours. Again, both items were combined to form a binary scale with 0 = *no support provided* and 1 = *support provided to at least one of the groups*. Support provided to the greater civil society was measured with an item asking if participants provided support to anyone they had not previously known (i.e., people not part of their own social circle). As with all other outcome measures, a binary response was recorded with 0 = *no support provided* and 1 = *support provided to others*.

2.2.3 | Covariates

Age and gender were included as covariates in every analysis. In a second set of analyses, we included additional covariates concerning the resources of a person, namely education (0 = *low and medium education*, 1 = *high education*), income (1 = 'struggling financially' or 'strongly struggling financially' and 0 = 'coping' or 'living comfortably'), income change during the pandemic (1 = 'very negative' or 'rather negative', 0 = 'no change', 'rather positive' or 'very positive'). We referred to Höltmann, Hutter, and Specht (2023) for the categorisation of these variables. Furthermore, we included dummy variables for respondents with childcare responsibilities, other care responsibilities and an infection with the coronavirus (self or household) (for all: 0 = *no*, 1 = *yes*).

2.3 | Analyses

Our research design was of a correlational nature: To assess the effects of multiple continuous predictors on our binary outcomes, we used multivariate logistic regressions, regressing each individual outcome measure on all Big Five personality traits as (standardised) independent variables with age and gender as covariates. To test the robustness of our analyses, we constructed a second set of models including additional resource related covariates (see above). Sampling weights were added to all analyses to enhance representativeness by reflecting socio-demographic quotas in the German population. All analyses, tables and figures were made using RStudio version 2022.12.0 (Posit Software 2023). All materials, data, R-scripts, additional analyses and further Supporting Information can be accessed via https://osf.io/m9wzd/?view_only=3ff6468f6aeb43068d5de48e54a32e9f.

TABLE 2 | Frequencies of outcome measures in absolute numbers and percentages.

Variable	Total N	Absolute frequencies	Percentage of N
Support received from social circle	3330	1875	56.31
Support received from civil society	3329	302	9.07
Support received from state	3330	471	14.14
Additional support needed from other people	3328	343	10.31
Additional support needed from state	3330	838	25.17
Support provided to social circle	3330	2531	76.01
Support provided to civil society	3330	426	12.79

Note: Absolute frequencies and percentages represent positive answers.

3 | Results

3.1 | Descriptive Analyses

As a first step, we present frequencies (Table 2) and bivariate correlations (Table 3) for our dependent variables. More than half of the sample received support from their social circle (meaning from family, friends or neighbours), making it the most prominent provider of social support. Respondents' personal social circle is also whom respondents themselves provided the most help to. Most dependent variables show small to medium correlations (Cohen 1988) with support provided to the social circle and support received from the social circle being the most strongly correlated ($r = 0.37$).

3.2 | Research Question 1: The Big Five Personality Traits and the Reception of Social Support

We examined the effects of the Big Five personality traits on the likelihood to receive social support from three different sources (own social circle, civil society and the state). Odds ratios and 95% confidence intervals are depicted in Figure 1, logits and confidence intervals for all three models are reported in Table S1. Openness is the strongest positive predictor for receiving support from one's personal social circle: For individuals with an openness score one standard deviation above the mean, the probability of receiving help from their social circle is increased in size by ca. 8% compared with those with average levels. Openness was also the strongest positive predictor for receiving support from civil society, and from the state. Similarly, extraversion positively predicted receiving support from all three sources. The effects of conscientiousness and emotional stability are mostly negative, with conscientiousness predicting societal forms of support reception negatively but having no significant association with support received from the social circle, and emotional stability showing a negative relationship with support received from the social circle and the state but not from civil society. Agreeableness shows divergent effects: It predicts support reception from the social circle positively but support reception from societal sources (civil society and the state) negatively.

To test the robustness of our analyses, we reassessed all models with additional resource related variables as covariates. We thus included education, income, income change, childcare responsibilities, other care responsibilities and a COVID infection (self or in the household). Results stayed essentially the same, with all previously reported effects remaining significant (see Table S1).

3.3 | Research Question 2: The Big Five Personality Traits and the Need for More Social Support

In two models, we regressed the need for additional support from other people and the need for additional financial support from the state on all five traits. Odds ratios and 95% confidence intervals are depicted in Figure 2, logits and confidence intervals are reported in more detail in Table S2.

Openness emerged as the only positive predictor for insufficient support but was only associated with the need for additional

TABLE 3 | Bivariate correlations between outcome measures.

	Support received from social circle	Support received from civil society	Support received from state	Additional support needed from others	Additional support needed from state	Support provided to social circle
Support received from civil society	0.20***					
Support received from state	0.08***	0.22***				
Additional support needed from others	0.09***	0.27***	0.20***			
Additional support needed from state	0.06***	0.12***	0.30***	0.21***		
Support provided for social circle	0.37***	0.09***	0.05**	0.03	−0.03	
Support provided to civil society	0.14***	0.35***	0.16***	0.19***	0.09***	0.14***

Note: Pearson correlations between outcome measures. Significance is marked with **$p < 0.01$ and ***$p < 0.001$.

support from other people, as the need for more financial support from the state remained non-significant. Emotional stability shows the strongest negative associations, both to the need for additional support from other people and the state. It is closely followed by agreeableness, which also predicted both support needs negatively. Conscientiousness was negatively associated with the need for support from other people yet was no significant predictor for insufficient financial support from the state. Finally, extraversion was not significantly associated with any of the two support needs. Taken together, the need for more support from other people was more strongly related to the Big Five than the need for more support from the state.

We also reassessed these models with the additional resource related covariates to test for robustness. The results remained largely the same, only the effect of emotional stability on the need for additional support from the state did not remain significant (see Table S2).

3.4 | Research Question 3: The Big Five Personality Traits and the Provision of Social Support

We analysed the association between the Big Five personality traits and the provision of social support to one's own social network and to civil society in two models, whose odds ratios and 95% confidence intervals are depicted in Figure 3. Logits and confidence intervals are reported in more detail in Table S3.

Again, openness emerged as the strongest positive predictor to both support provided to the social circle as well as to civil society. All other traits showed more heterogenous associations: Extraversion was positively associated only with the support provided to the social circle. Conscientiousness was negatively associated with providing support in civil society, whereas emotional stability was negatively associated with support provided to the social circle. Agreeableness was inversely related to both forms of support provision, with a positive association to support provided to the social circle but a negative association with support provided to civil society.

To test the robustness of our analyses, we reanalyzed our regression models with the additional resource related covariates. Results remained largely the same, only the effect of agreeableness on the social support provided to civil society did not remain significant (see Table S3).

Table 4 provides an overview of results across all the three research questions. All personality traits show meaningful associations to receiving, needing and providing support.

4 | Discussion

In this study, we used data of a large and diverse sample collected in the midst of the COVID-19 pandemic in Germany to find associations between personality and social support
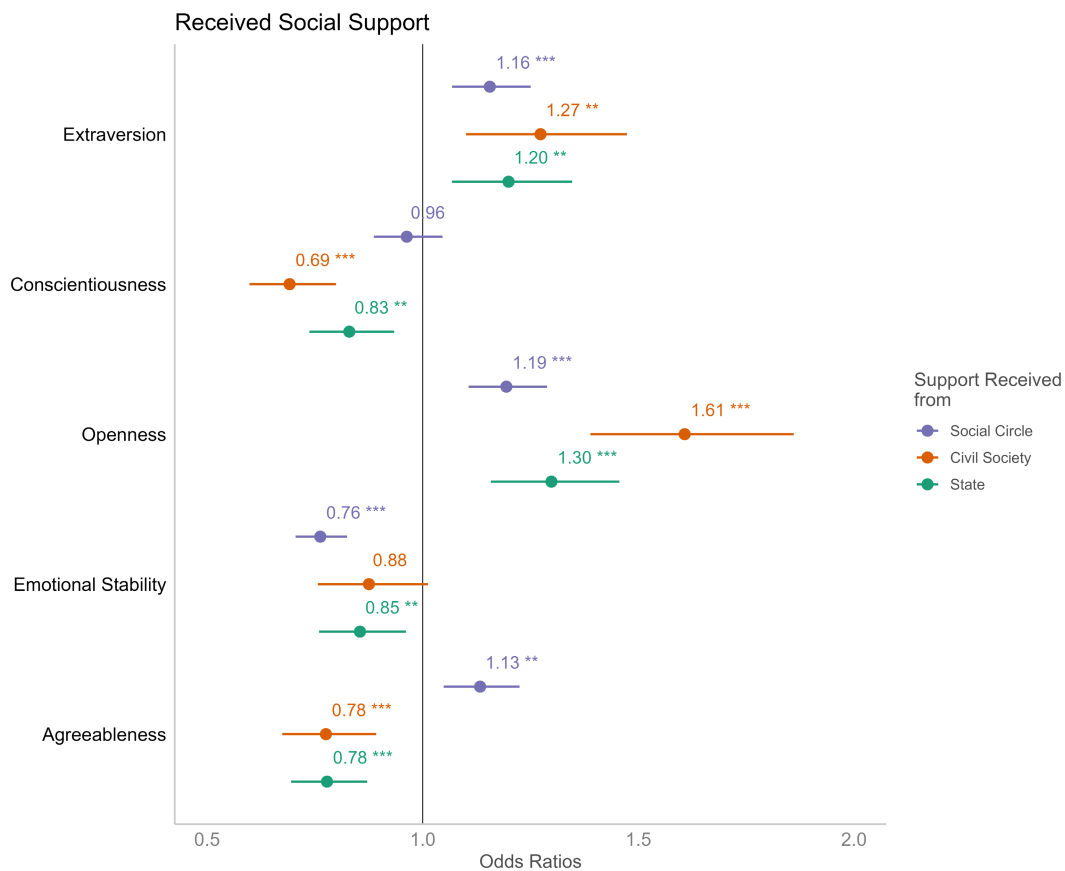

FIGURE 1 | Social support received from the social circle, civil society and the state. Age and gender are included in the regression model but not depicted. Odds ratios < 1 indicate a negative effect, odds ratios > 1 represent a positive effect. Confidence intervals encompassing 1.0 indicate no significant effect. Significance is also marked with **$p < 0.01$ and ***$p < 0.001$.
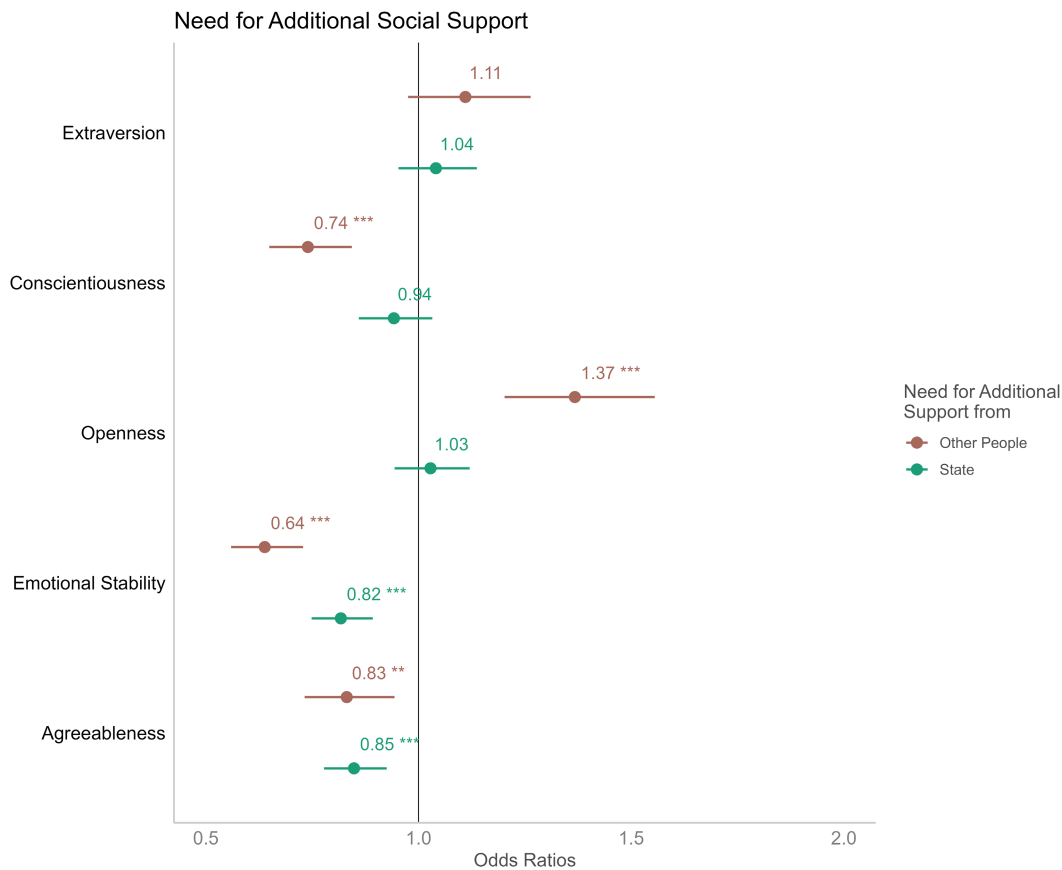
FIGURE 2 | Need for additional support from other people and the state. Age and gender are included in the regression model but not depicted. Odds ratios <1 indicate a negative effect, odds ratios >1 represent a positive effect. Confidence intervals encompassing 1 indicate no significant effect. Significance is also marked with **$p < 0.01$ and ***$p < 0.001$.

behaviours. Most support was received from and provided to the social circle (cf. Carlsen, Toubøl, and Brincker 2021) but the influence of the Big Five personality traits was overall comparable in size between social and societal sources. The resource-related variables that we included in our additional analyses were also significant predictors of all outcomes (see Tables S1–S3), highlighting the importance of available resources during a crisis like the pandemic. However, they did not affect the general conclusions on the impact of personality on support process, thus demonstrating the robustness of its influence above and beyond socioeconomic factors.

The consistently positive correlations between support reception and support provision possibly indicate reciprocal support systems. Additionally, medium correlations within the same system (e.g., support received from and provided to the social circle) compared with small correlations between systems (e.g., support provided to the social circle and support received from civil society) provide further signs for support reciprocity during the pandemic.

4.1 | Research Question 1: The Big Five Personality Traits and the Reception of Social Support

Our hypotheses regarding the reception of support were confirmed, with extraversion and openness positively predicting

the reception of support from all three sources. The predicted negative effect of conscientiousness was only found for support received from civil society and the state but not for support received from one's own social circle. The expected positive effect of agreeableness was only found for support received from the social circle but not the other two sources. Interestingly, agreeableness even negatively predicted support received from both of the societal sources. These results suggest that many of the associations between personality and received support found in other contexts (e.g., Bowling, Beehr, and Swader 2005; Dehle and Landers 2005; DeViva et al. 2016; Williamson and O'Hara 2017) apply during the pandemic as well.

However, our study also clearly demonstrates that a differentiation between sources of support is necessary, as the effects of personality traits can vary strongly in size and significance between them and may actually go in opposing directions (see Table 4). This was particularly evident for agreeableness, which predicted receiving support from *social* sources positively and receiving support from *societal* sources negatively. As agreeable individuals strongly value social relations, are trusting towards their peers, and are well-liked and valued as friends (Furnham 2017) they might be particularly likely to receive all of their support from their close contacts and therefore be in no need for support from societal sources. It may be of interest to further analyse this
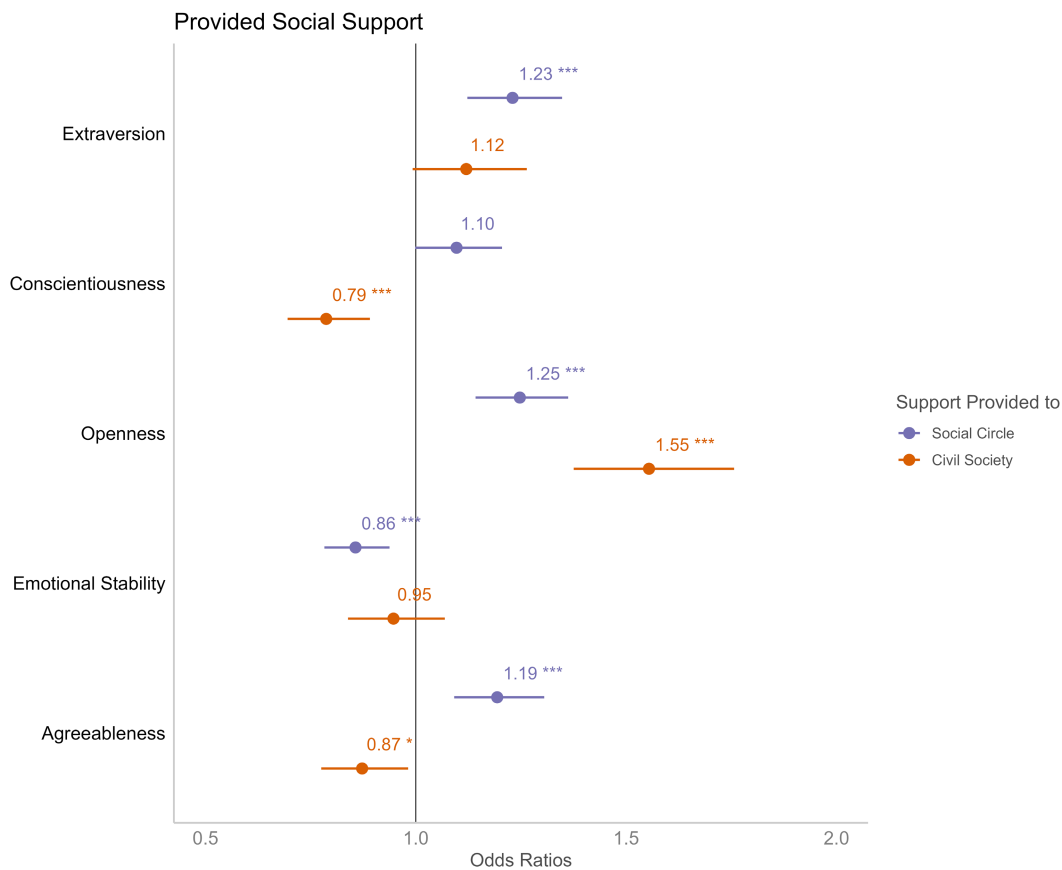
Provided Social Support

FIGURE 3 | Social support provided to the social circle and civil society. Age and gender are included in the regression model but not depicted. Odds ratios <1 indicate a negative effect, odds ratios >1 represent a positive effect. Confidence intervals encompassing 1 indicate no significant effect. Significance is also marked with *$p < 0.05$, **$p < 0.01$ and ***$p < 0.001$.

proposed effect under non-pandemic circumstances in future studies.

4.2 | Research Question 2: The Big Five Personality Traits and the Need for Additional Social Support

The hypothesised negative associations for emotional stability and agreeableness were confirmed for both additional support needed from other people and additional support needed from the state. Our assumption that conscientiousness is negatively associated with the need for additional support only held true for the need for support from other people, not for support from the state. Surprisingly, those scoring high in openness were largely and significantly more likely to need additional social support from other people than those less open.

The fact that openness was the strongest positive predictor for receiving support from all three sources and yet also the strongest positive predictor for the need for additional support from others might be (at least partly) explained by open individuals' vocational situations: Openness is strongly related to artistic vocational interests (Larson, Rottinghaus, and Borgen 2002), making it more likely that open individuals work in art or cultural institutions—a sector hit particularly hard by pandemic measures (Federal Ministry for Economic Affairs and Climate

Action 2022). Open individuals' tendency to seek social support as a coping mechanism (Ferrer et al. 2021) may therefore have been expressed strongly during the pandemic but may have not always been adequately satisfied by others. Future research could take a closer look into the mechanisms and predictors of the need for additional support and the strong positive associations with openness in times of crisis.

4.3 | Research Question 3: The Big Five Personality Traits and the Provision of Social Support

Our third research question related to the association between the Big Five personality traits and the provision of social support. As per our assumptions, openness and extraversion were positively associated with the provision of social support a reason for the strong effect of openness on both forms of support provision may have been the sudden and drastic change in volunteering needs. Open individuals may have been better able to adapt to this change in needs and were particularly useful to volunteering organisations with their creativity and ingenuity in times of crisis (John 2021). Furthermore, we found the hypothesised positive effect of agreeableness on the provision of support to one's own social circle. Taken together, our results indicate that those engaged under non-pandemic circumstances (extraverted, open and agreeable individuals) were also more likely to be engaged during the pandemic.

TABLE 4 | Summary of all models: effects of the Big Five.

Trait	Support received from social circle	Support received from civil society	Support received from state	Add. Support needed from others	Add. Support needed from state	Support provided to social circle	Support provided to civil society
Extraversion	0.145***	0.242**	0.182**	0.105	0.040	0.207***	0.113
Conscientiousness	−0.038	−0.369***	−0.187**	−0.301***	−0.060	0.092	−0.239***
Openness	0.177***	0.475***	0.261***	0.313***	0.028	0.221***	0.441***
Emotional stability	−0.271***	−0.133	−0.157**	−0.449***	−0.202***	−0.155***	−0.054
Agreeableness	0.125*	−0.254***	−0.251***	−0.185***	−0.165***	0.177***	−0.136*

Note: This table shows logits for the effects of all five traits (standardised). Age and Gender are included in the models but not depicted here. Significance is marked with *$p < 0.05$, **$p < 0.01$ and ***$p < 0.001$. Fields shaded green indicate a significant positive effect, fields shaded red indicate a significant negative effect.

Unexpected findings were the negative effect of conscientiousness, the negative effect of agreeableness on support provision in civil society, and the negative effect of emotional stability on social network support provision. These findings might be explained by the extraordinary circumstances of the pandemic: Conscientious individuals were more likely to adhere to containment measures such as physical distancing (Aschwanden et al. 2021) and might have prioritised these measures over support provision for other citizens. The opposing effects of agreeableness on social versus societal support provision might be due to, on one hand, agreeable individuals' compassion for their *social* contacts, evoking supportive behaviour in them, and, on the other hand, their struggle to take initiative (Furnham 2017) which particularly thwarted their *societal* engagement during the pandemic, when civic initiative was especially needed. Finally, emotionally unstable individuals may have perceived helping their family, friends and neighbours as one of the only possible ways to enhance their mood during straining lockdowns, were thus particularly engaged and therefore created a negative association between emotional stability and support provided to the social circle. Future studies might look into the idea of informal support provision as a coping mechanism during stressful times.

4.4 | Application to Future Crises and Action Recommendations

There are several ramifications stemming from the results of our study. First, we showed that even under the drastically different pandemic circumstances with changed support needs and changed provision systems, the effects of personality were similar to those under more normal circumstances. This lets us assume that these effects are robust across situations and will also apply to future crises of various nature, when social support will be of particular importance again. It might also implicate the possibility of implementing actions even before the onset of the next crisis in the hopes of carrying over their effects.

Second, our study showed that less conscientious, less agreeable, less emotionally stable and more open individuals did not receive sufficient support. At the same time, these individuals were already more likely to receive support from their social circle and/or civil society. Therefore, with regard to personality, it might be sensible to intensify or adapt support provision to those already receiving it. We speculate that there may be three reasons why these individuals received insufficient support and where interventions could be applied. The first is social integration: Less agreeable, less conscientious and less emotionally stable individuals are more prone to have troubled social relationships, which might have caused a less reliable support network (see John 2021, for a short overview of the effects of the Big Five on life outcomes). Civil society organisations could target their efforts directly at these persons in order to compensate for these inadequate social networks. The second reason concerns a person's neediness: Less conscientious and less emotionally stable individuals often have worse outcomes regarding health, coping or organising and therefore have a higher need for support from others, which may be left unsatisfied more often. Actors in civil society could address this shortcoming by providing them with

the tools and strategies necessary to better cope independently. The third reason are pandemic-specific effects: Open individuals, who often work in artistic or atypical occupations and who seek out cultural experiences, may have been hit particularly hard by the pandemic and might have been less satisfied with the types of support that were available to them. If civil society organisations wanted to focus on providing them with adequate support, they might include more mentally or culturally stimulating (as opposed to purely practical) support in their repertoire. Regardless of personality, our data shows signs for reciprocal support networks. Therefore, civil societies should not consider their volunteers and their support recipients as two discrepant groups but could consider volunteer recruitment as a way to reach support recipients as well.

Our study also has implications for the recruitment of volunteers by civil society organisations: We show that conscientious individuals were less likely to be engaged in the pandemic, however, it has been reported that *if* conscientious individuals *are* engaged, they actually spend more time volunteering than those less conscientious (Ackermann 2019). Therefore, they might be a good target for intensified recruiting efforts. Additionally, organisations might win over agreeable individuals from just supporting their own social circle to providing support to strangers by broadening their communal orientation to include a larger share of society or by reducing the amount of initiative required on the part of the prospective volunteers.

4.5 | Strengths and Limitations

Our study used comprehensive data from a largely representative sample that was collected during the first year of the COVID-19 pandemic, providing us with valuable information to answer our research questions. Our large sample size gave us enough statistical power to reliably detect even small effects. By distinguishing between different sources and targets of social support, we were furthermore able to find and report differential effects in greater detail than other works before. Hence, our discoveries complement the findings from previous studies conducted under different (pandemic and non-pandemic) circumstances with new insights into the support structures from different sources during the COVID-19 pandemic.

However, standing alone, our data cannot be strictly interpreted causally, as all measures were correlational and no experimental manipulation took place. As a result, personality may have impacted support behaviours (as it does for all other forms of behaviours), but it also may have changed in reaction to the support provided, received or missed. Furthermore, even though we controlled for several other variables like age, gender and resource-related variables, there might be additional variables not controlled for here that may cause the correlation between personality and support behaviours. Future research will hopefully shed further light onto the conditions and mechanisms that cause, ease, or hinder social support in society.

The following aspects should also be kept in mind when interpreting our evidence: First, we used retrospective self-reports and binary outcome measures to assess received, needed and provided social support (cf. Bertogg and Koos 2022; Mak and Fancourt 2022, who used similar methods to assess support received or provided). Future research on the subject may employ diary studies to better gauge behaviour on a day-to-day basis. Forthcoming studies might also shift their focus on the effects of the Big Five personality traits on the amount, intensity or frequency of the support received, needed and provided. Furthermore, they might employ observational methods to complement the findings obtained with subjective self-reports here.

Second, our study focused on adults aged 18–69 and did not include any participants aged 70 years and above. People of old and very old age constituted a special group during the pandemic, as they were particularly vulnerable and therefore may have needed more help and other kinds of support. Thus, future studies researching personality and support processes might consider concentrating exclusively on them. Additionally, we used a German sample to answer our research questions. Our findings should therefore not be applied unquestioningly to other countries, especially non-European ones.

Lastly, we focused on predictors of social support during the pandemic per se and did not control for pre-pandemic levels of engagement. Using a long-term panel study with yearly data acquisitions could be used to confirm the idea that those usually receiving, needing and providing the most support are also the most likely recipients and providers of support in times of crises (see also Borbáth et al. 2021).

5 | Conclusion

Our study was able to demonstrate differing associations between personality traits and the social support received, provided and additionally needed during the COVID-19 pandemic. These associations remain largely the same when controlling for resource related factors such as education, income or caretaking obligations, thus highlighting the robust relationship between personality traits and social support processes.

Moreover, we show the importance of differentiating between social and societal sources and targets of social support: The Big Five personality traits had differential and sometimes even contrary effects on different support sources. In order to reliably describe the effects of personality traits on social support processes, future studies might also consider this differentiation.

Ethics Statement

The study was approved by the Research Ethics Committee of the WZB Berlin Social Science Center prior to data collection (Review number: 2020/2/95).

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The questionnaire, codebook, data and R-script, exact p-values, supplementary analyses, and a statement on the determination of the sample size can be accessed via this OSF-repository: https://osf.io/m9wzd/?view_only=3ff6468f6aeb43068d5de48e54a32e9f.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.