



## Children and adolescents in the COVID-19 pandemic: Psychosocial and educational challenges and opportunities

### Executive summary

The COVID-19 pandemic is having a profound impact on all of our lives. Children and adolescents are particularly affected by the current situation given its impact on their education and various other opportunities for development. The ramifications run even deeper among this age group because childhood and adolescence are periods of life with unique socialisation requirements, during which experiences are highly formative. Due to the plasticity<sup>1</sup> of the human brain and individual resilience<sup>2</sup>, most children and adolescents will, in all likelihood, be able to overcome the challenges and deficits caused by the pandemic. Some will, however, suffer negative consequences in the short, medium and probably long term. In these cases, the pandemic is often exacerbating existing inequalities and developmental risks.

In a series of seven ad hoc statements issued to date, the German National Academy of Sciences Leopoldina has published recommendations on various issues concerning the COVID-19 pandemic. This eighth ad hoc statement examines the psychosocial and educational situation of children and adolescents during the pandemic and also addresses aspects relating to their motor development. The pandemic is such a fluid situation that findings on how it impacts children and adolescents can only ever be snapshots of the changing reality. Due to their short observation periods, many of the studies available at present are limited in terms of their validity and transferability. However, findings from a number of empirical studies provide insights into how children and adolescents have been negatively impacted by the pandemic. Moreover, evidence-based conclusions on the long-term effects of the pandemic situation can be drawn from the extensive research on factors negatively affecting children and adolescents.

Some important aspects of children's and adolescents' lives – such as art, music and handicrafts – have thus far seen little to no empirical research in the context of the coronavirus pandemic. This statement will therefore not address these areas, which nevertheless play an important role in child and adolescent development.

The pandemic has had a wide range of consequences for children and adolescents, especially in the domains of education, social interaction, socioemotional development, physical activity and psychological wellbeing. However, not all children and adolescents are equally affected. There are also huge discrepancies in how well children and adolescents, their families and their local environments have dealt with the situation. Even before the pandemic, the potential negative conse-

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<sup>1</sup> Plasticity describes the brain's ability to adapt and change its functionality in response to environmental requirements.

<sup>2</sup> In this statement, resilience is defined as the ability to overcome difficult life situations without any lasting impairments.

quences of growing up with a lack of resources – e.g. in terms of low parental income or education – were flagged repeatedly. An accumulation of these factors increases the likelihood of the pandemic having a negative impact on adolescents.

It is a key societal and political task to create educational and support structures which are capable of compensating for the deficits caused by the pandemic and of addressing pre-existing inequalities in the educational and development opportunities of children and adolescents in the long term. In other words, the aim should not be to correct the effects of the pandemic, but to create better conditions for Germany's children and adolescents than before the pandemic. This should involve creating and expanding structural opportunities for children and adolescents to become actively involved in developing and implementing measures, rather than simply being passive recipients of those measures.

In this ad hoc statement, the German National Academy of Sciences Leopoldina recommends the following:

- Keep educational institutions open, while taking appropriate protective measures, and enable in-person teaching. Physical attendance of preschools and schools is the most effective form of learning for virtually all children.
- Accelerate the expansion of the digital infrastructure in educational institutions by investing in hardware, IT staff and the training and further development of educational and teaching staff in preschools and schools.
- Provide long-term language support to help pupils learn German by using standardised early language assessment methods and by expanding the role of integrated language learning support in childcare settings.
- Adjust school timetables so that primary schools can prioritise helping pupils to make up for lost ground in the core subjects of German and maths, and provide additional support for lower-performing pupils at both primary and secondary level.
- Improve the information provided on local support measures and mentoring programmes to promote psychosocial development and improve educational mobility.
- Develop an infrastructure which encourages physical activity among children and adolescents, ideally including daily exercise in preschools and schools and comprehensive programmes to promote a healthy lifestyle (nutrition, sleep, physical activity) in both preschools and schools.
- Provide educational staff in preschools and teaching staff in schools with training in how to recognise the signs of emerging mental health problems. This early-warning system should be flanked by further development of the existing infrastructure, for example in the area of school social work.
- Expand evidence-based measures in child and youth welfare services and evidence-based treatments for mental disorders among children and adolescents to further improve the outcomes of interventions for mental health problems. Therapy waiting times should be reduced.

## Table of contents

1	What do we know about how children and adolescents develop?.....	4
2	Impacts of the pandemic on children and adolescents – challenges and recommendations for action.....	6
2.1	Education .....	6
	Recommendations for action .....	9
2.2	Social interactions and socioemotional development .....	10
	Recommendations for action .....	11
2.3	Physical activity.....	12
	Recommendations for action .....	12
2.4	Wellbeing and psychological situation .....	13
	Recommendations for action .....	14
3	References.....	16
4	Contributors .....	22

# 1 What do we know about how children and adolescents develop?

It is crucial to take the following four points into account when considering how the pandemic and the measures taken to contain its spread may influence child and youth development: (1) The cognitive, socioemotional and motor development of children and adolescents is the result of continuous interactions between genetic predispositions and environmental influences. (2) For some abilities, there is a timeframe in which children must have had certain environmental experiences if they are to be able to develop these abilities to their full potential (sensitive phases) or at all (critical phases). (3) The early development of abilities has a multiplier effect on the development of subsequent abilities. (4) Children and adolescents develop differently depending their personal resilience as well as environmental resources and requirements.

(1): The brain's functional architecture and the resulting abilities are shaped by both the environment and individual genetic predispositions.<sup>3</sup> The environment is made up of various people. In addition to parents, siblings and other family members, educational settings such as preschools and schools play a role, as do peers, neighbourhoods and centres offering extra-curricular activities, such as sport and music. While neuroplastic adaptation begins before birth and continues into adulthood, neuroplasticity is particularly pronounced during the first years of life and decreases with age.

(2): As children and adolescents develop, "windows of plasticity" open and close. If environmental influences which support development are missing during these phases of life, abilities may develop insufficiently or not at all.<sup>4</sup> The length of time for which these windows are open depends on the functional domain in question, with some remaining open until adulthood. In domains in which the windows of plasticity remain open for longer, children and adolescents can make up for potential developmental deficits later. However, in domains where the windows of plasticity close earlier, catching up requires significant resources, if it is possible at all. In these cases, later interventions are less efficient.

Language acquisition is an excellent example of how critical and sensitive phases can affect child development.<sup>5</sup> Native speaker competence in a language is acquired if the child receives adequate linguistic input by their sixth or seventh birthday.<sup>6</sup> Although it is possible to learn foreign languages at an older age, this requires more effort.<sup>7</sup> Child refugees and immigrants are capable of learning to speak grammatically correct German without an accent only if they receive adequate linguistic input between the ages of two and six.

The development of social and motivational skills like empathy, a sense of justice and self-control is also contingent on environmental experiences and social interactions. However, less is known about the timing and length of critical and sensitive periods in this context. Since the development of these skills is linked with the maturing of the frontal structures of the brain and some of these maturation

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<sup>3</sup> See German National Academy of Sciences Leopoldina 2014.

<sup>4</sup> E.g. Bzdok and Dunbar 2020.

<sup>5</sup> See Werker and Hensch 2015.

<sup>6</sup> See Mayberry, Lock, and Kazmi 2002; Weber-Fox and Neville 1996.

<sup>7</sup> See Kuhl 2010.

processes are completed only after puberty, it can be assumed that environmental influences have a significant effect until late adolescence.<sup>8</sup>

(3): Development is a dynamic process during which abilities build on those that have already been acquired.<sup>9</sup> This is especially, but not only, the case for abilities in the same functional domain, such as language, motor skills<sup>10</sup> or sociocognitive skills such as empathy. From the perspective of lifelong development, investments in early childhood education make learning in subsequent stages of life more productive. In economic terms, this multiplier effect means that earlier investments generally yield higher returns than later ones. Early investments may pay off twice over – by supporting children to develop abilities at an early age and by improving the efficiency with which further abilities are acquired later in life. A child’s individual genetic potential for intellectual development can therefore be better exploited if they are sufficiently challenged and encouraged at an early age.<sup>11</sup>

(4): Difficult life events may affect development processes differently depending on an individual’s personal resilience. Resilience can be defined as a person’s ability to survive difficult circumstances without lasting effects on their physical and mental wellbeing. Long-term studies on crises and critical life events have shown that most children and adolescents have a high degree of resilience and can even become stronger following a crisis.<sup>12</sup> Accordingly, not all children and adolescents will be equally affected by the pandemic. The situation will influence their development differently depending on various individual factors, including age, functional domain (e.g. language, cognition, emotion and motor skills) and personal traits, but also external factors (e.g. resources available in the family environment and the local infrastructure for children and adolescents). It is therefore of crucial importance to draw on conceptual considerations and empirical data to provide support precisely where it seems most likely to be needed.

Due to the brain’s high level of plasticity and the high capacity for learning in childhood and adolescence, positive and negative environmental influences have a particularly strong impact on development during this stage of life. These influences can have either a cumulative or compensatory effect. A stressful situation like a pandemic will have more serious ramifications for children and adolescents who have been or are exposed to additional risks, such as educational disadvantage or low social status. In normal times – i.e. when there are no pandemic-related restrictions – experience shows that these at-risk groups draw particular benefit from high-quality educational programmes in preschools and schools.<sup>13</sup> Close attention should be paid to these groups to ensure that medium- to long-term effects are avoided or at least reduced. At the same time, it is important to bear in mind that less disadvantaged children may not be able to reach their full potential either if they are insufficiently stretched due to pandemic conditions.

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<sup>8</sup> See Casey et al. 2005; Gilmore, Knickmeyer, and Gao 2018.

<sup>9</sup> E.g. Conti and Heckman 2014; Cunha et al. 2006; Cunha and Heckman 2007.

<sup>10</sup> See True et al. 2021.

<sup>11</sup> See Noble et al. 2012; von Stumm and Plomin 2015; Heckman 2006; 2007.

<sup>12</sup> See Bonanno et al. 2010.

<sup>13</sup> For a definition of the at-risk groups, see Authoring Group Educational Reporting 2020; Bzdok and Dunbar 2020.

## 2 Impacts of the pandemic on children and adolescents – challenges and recommendations for action

The COVID-19 pandemic is such a fluid situation that findings on how it impacts children and adolescents can only ever be snapshots of the changing reality. Moreover, many of the scientific studies available at present are limited in terms of their validity and transferability. Some are based on small samples; many offer cross-sectional insights into the population at particular points in time during the pandemic, making direct comparison with data collected before the pandemic impossible. Moreover, data collection methods have had to be adapted to the pandemic situation (e.g. the studies often relied on survey data rather than behavioural or observational data), the majority of studies refer to certain phases of the pandemic (most studies published to date cover only the first wave of the pandemic) and, in some cases, different regional approaches limit the comparability of the data. However, several studies also cover the pre-pandemic situation and therefore provide insights into the consequences of the pandemic. Where systematic reviews and meta-analyses were not available, the evidence and recommendations for action presented in this ad hoc statement were, wherever possible, based on longitudinal studies covering the pre-pandemic situation. Evidence-based conclusions – for example, on how missing out on education could impact on development and job opportunities later in life unless attempts are made to compensate for these shortfalls as soon as possible – can also be drawn from the extensive research conducted before the pandemic on factors negatively affecting children and adolescents.<sup>14</sup>

The pandemic has had a wide range of consequences for children and adolescents, especially in the domains of education, social interaction, socioemotional development, physical activity and psychological wellbeing. Not all children and adolescents are equally affected. There are also huge discrepancies in how well they, their families and their local environments have dealt with the situation.<sup>15</sup> Even before the pandemic, the potential negative consequences of growing up with a lack of resources – e.g. in terms of parental income or education – were flagged repeatedly.<sup>16</sup> An accumulation of these factors increases the likelihood of the pandemic having a negative impact on children and adolescents.

### 2.1 Education

The German education system was beset by unfavourable trends even before the pandemic. Around one fifth of five-year-olds needed language support in 2017.<sup>17</sup> More than 25 percent of pupils (almost 200,000) at the end of grade 4, the final year of primary education in many German states, had such poor maths and science literacy in 2019 that they would probably not have the core knowledge required to continue learning effectively in these two subjects after starting lower secondary education.<sup>18</sup> Around 21 percent of 15-year-olds in German schools (around 150,000) could not read for meaning in 2018.<sup>19</sup> Approximately half of the school leavers with an immigration background who try

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<sup>14</sup> Numerous scientific works also document how investments in child and adolescent education and development are especially beneficial for society.

<sup>15</sup> See Andresen, Lips et al. 2020; Andresen, Heyer et al. 2020; Entringer et al. 2021; Huebener, Spieß, and Zinn 2020; Huebener, Waights et al. 2021.

<sup>16</sup> See Authoring Group Educational Reporting 2020.

<sup>17</sup> See Authoring Group Educational Reporting 2020.

<sup>18</sup> See Schwippert et al. 2020.

<sup>19</sup> See Reiss et al. 2019.

to secure a traineeship after completing lower secondary education do not find one straightaway and instead find themselves in the “transition system” established to facilitate the move from school to training.<sup>20</sup>

The pandemic therefore arrived at a time when a crisis was already looming. For more than a year, it repeatedly caused preschool and school closures, meant that pupils had to keep alternating between classroom and remote learning, and led to other forms of “reduced learning”. Preschool and school closures are known to have negative effects on both the acquisition of subject-specific skills<sup>21</sup> and general cognitive development.<sup>22</sup> When preschools are closed, children are affected before even starting primary school. Almost all studies report a significant drop in active learning time during the pandemic. On average, pupils spent 2.7 to 5 hours per day on school-related activities when distance learning was introduced during the first lockdown (spring 2020).<sup>23</sup> Various studies conclude that between 23 percent and 57 percent of pupils dedicated less than two hours a day to school tasks during periods of distance learning.<sup>24</sup> The average time each pupil spent learning was also lower than normal during the second lockdown (December 2020 to spring 2021).<sup>25</sup>

Several surveys indicate that the drop in learning time caused by remote lessons was greater among younger pupils than older pupils.<sup>26</sup> Findings on the amount of time spent learning by children and adolescents from families with low resources are mixed. A pupil survey<sup>27</sup> and a parent survey<sup>28</sup> reported no differences in the amount of time spent learning by pupils from socially and educationally disadvantaged families. However, during the first lockdown, significantly more parents without an academic degree (49 percent) than parents with an academic degree (37 percent) stated that their children never had online lessons.<sup>29</sup> Teachers of disadvantaged pupils were more likely to report that they could not reach their pupils (36 percent compared with an average of just 12 percent for all pupils).<sup>30</sup> Furthermore, during the first and second lockdowns, lower-performing children spent less time on school-related activities<sup>31</sup> and their parents found it much harder to motivate them to study at home<sup>32</sup>.

However, attainment is determined not only by the number of lessons which take place, but also by their quality. During periods of remote learning, teachers mainly concentrate on preparing exercises and videos, etc., for online lessons and provide pupils with few opportunities for constructive or cooperative learning, which is known to be more effective. Lessons involving the entire class (e.g. via video link) took place at most once a week in 70 percent of cases during the first lockdown and in 39 percent of cases during the second lockdown.<sup>33</sup> Nevertheless, some positive changes were also

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<sup>20</sup> See Authoring Group Educational Reporting 2020.

<sup>21</sup> See Kaffenberger 2021.

<sup>22</sup> See Ceci 1991.

<sup>23</sup> See Helm, Huber, and Loisinger 2021.

<sup>24</sup> See Helm, Huber, and Loisinger 2021.

<sup>25</sup> See Wößmann et al. 2021 and Zinn and Bayer 2021.

<sup>26</sup> See Holtgrewe et al. 2020; Refle et al. 2020.

<sup>27</sup> See Anger et al. 2020.

<sup>28</sup> See Wößmann 2020.

<sup>29</sup> See Wößmann 2020.

<sup>30</sup> See Steiner et al. 2020.

<sup>31</sup> See Wößmann et al. 2021.

<sup>32</sup> See Lockl et al. 2021.

<sup>33</sup> See Wößmann et al. 2021.

reported, with initial studies showing that parents noticed an improvement in their children's digital skills and independent learning abilities.<sup>34</sup>

Although regular and ongoing feedback is one of the most important factors behind successful learning, it rarely seems to be systematically integrated into remote teaching. Indeed, 63 percent of parents reported that their child received feedback on their work at most once a week during the first lockdown and 55 percent during the second lockdown.<sup>35</sup> Distance learning makes it extremely difficult for pupils to interact with each other. As a result, children miss out not only on a crucial element of learning, but also on the enormous influence which interacting with peers of the same age has on their psychosocial development.<sup>36</sup> This latter point also applies to preschool children. At present, there are no representative data on the learning processes of preschool children at home. However, it can be assumed that many of the development opportunities offered by preschools cannot be substituted in the family environment.

An analysis summarising the test results of more than 2.5 million pupils from five countries (Belgium, Germany, Netherlands, Switzerland, United States) after the first lockdown found that overall the pupils had lost around 23 to 35 percent of their learning time as a result of school closures.<sup>37</sup> The losses were greater among primary school children than older children and significantly more hours of maths were lost than hours on the language of instruction. The studies analysed also reveal considerable individual differences in learning losses. The effect sizes reported suggest that younger pupils lost around a quarter of an academic year. The older the pupils, the less pronounced the losses.

When evaluating losses in learning, however, it is important to consider that the results reported above relate only to a relatively short period of school closures (first lockdown in spring 2020). Findings on the effects over the first year of the pandemic have yet to be published. Based on the results available to date, it can be assumed that the losses in learning caused by the later lockdown are even greater in size – because they would have added to the losses already experienced. Due to the large number of children and adolescents concerned, moreover, even small effects can have significant economic consequences.

Further studies which analyse the effects separately for different groups consistently show that children who performed less well before the pandemic and those from families with few resources have experienced particularly significant declines in academic performance.<sup>38</sup> Children and adolescents whose parents have a low level of education are also more likely to be adversely affected by the pandemic. They find learning more challenging and more frequently have difficulties managing the school day.<sup>39</sup> Parents with a lower level of education also worry considerably more about their children's education than do parents with a higher level of education.<sup>40</sup> Parents with an immigration

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<sup>34</sup> See Wößmann et al. 2021.

<sup>35</sup> See Wößmann et al. 2021.

<sup>36</sup> See Helm, Huber, and Loisinger 2021 and Wolter et al. 2020 for German-speaking countries and a comparison between 2020 and 2018 for Norway in Mælan et al. 2021.

<sup>37</sup> See Zierer 2021.

<sup>38</sup> See Blainey, Hiorns, and Hannay 2020; Engzell, Frey, and Verhagen 2020; Kogan and Lavertu 2021; Maldonado and De Witte 2020; Schult et al. 2021.

<sup>39</sup> See Ravens-Sieberer, Kaman, Otto et al. 2021.

<sup>40</sup> See Huebener, Siegel et al. 2021.

background whose proficiency in German is low are often less able to support their children during distance learning.<sup>41</sup>

Children and adolescents with special educational needs are dependent on tailored services provided outside the home. Besides being affected by preschool and school closures, they have often had to do without these additional support services during the pandemic. The data show that, with very few exceptions, the pandemic has had an extremely negative impact on these families.<sup>42</sup> They have also experienced more difficulties with home learning due to the lack of access to specialist and personalised support.<sup>43</sup>

### Recommendations for action

Against this backdrop, we recommend the following:

1. Keep educational institutions open, while taking appropriate protective measures, during the forthcoming 2021/22 academic year and ensure that pupils can be taught in person. Physical attendance of preschools and schools is the most effective form of learning for virtually all children.
2. Accelerate and consolidate improvements to the digital infrastructure of the education sector. In addition to investing in technical equipment, more staff should be employed (e.g. IT specialists to maintain and develop the infrastructure in schools and child and youth welfare services). Staff should also be given further training on how to teach using digital media. In the short term, educational and teaching staff require training. In the medium term, digital teaching skills should be made an integral part of their qualification and continuing professional development.
3. Assess all children's language skills at an early age using a validated, standardised tests. Often, a child's language proficiency is evaluated only in the final year before they start school using methods which fail to provide meaningful results; in some federal states, only children with an immigration background are assessed.<sup>44</sup> It would make sense to use standardised diagnostic tests to assess *all* children much earlier (e.g. at the age of three years).
4. Building on this, make long-term improvements to the quality of language learning in preschools. Dialogic reading is one suitable method for achieving this.<sup>45</sup> Expanding the role of integrated language support in childcare settings is also advisable. For children who require extra help with language learning, we recommend providing longer-term additional, specific support which also involves the children's parents. To this end, educational staff require adequate training and continuing professional development on working with families, as well as support in this area.
5. Assess pupils in all age groups for which appropriate, empirically validated tests are available on an ongoing basis so that learning deficits can be detected as they develop and targeted measures can be implemented.
6. Temporarily adjust school timetables so that primary schools can prioritise making up for learning gaps in German and maths. Just one lesson more in each of these subjects can help to reduce the learning deficits which have emerged. It is particularly important that this recommendation

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<sup>41</sup> See Helm, Huber, and Loisinger 2021.

<sup>42</sup> See Asbury et al. 2021.

<sup>43</sup> See Goldan, Geist, and Lütje-Klose 2020; Nusser 2021.

<sup>44</sup> <https://www.bildungsserver.de/Sprachstandserhebungen-und-Sprachfoerderkonzepte-der-Bundeslaender-2308-de.html> (accessed on: 2 June 2021).

<sup>45</sup> E.g. Egert and Hopf 2016; Egert 2017; Ennemoser, Kuhl, and Pepouna 2013.

be followed for primary school pupils who will be entering lower secondary education after the 2021/22 academic year.

7. Provide additional support, especially in German and maths, to help pupils who have gaps in their learning at the end of primary school, regardless of whether these shortfalls are related to the pandemic or not.<sup>46</sup> We also recommend that lower-performing primary school pupils be supported by qualified tutors (retired teachers and/or suitably qualified trainee teachers). Support from qualified tutors – ideally provided on a one-to-one basis – is extremely effective.<sup>47</sup>

## 2.2 Social interactions and socioemotional development

Social distancing was one of the key measures introduced to tackle the pandemic and had a significant impact on the everyday social lives of children and adolescents. Since the data published to date relates primarily to the first lockdown and the months following it in summer 2020, it is only possible to paint a partial picture of the current situation. It can nevertheless be assumed that the problems caused by lack of social contact worsened as the pandemic wore on. Reports from both parents<sup>48</sup> and children<sup>49</sup> suggest that children have felt lonely and socially isolated. In terms of social relationships, 83 percent of children and adolescents participating in the COPSY study<sup>50</sup> reported a decline in social contacts and 39 percent stated that their friendships were not as close as before the pandemic.<sup>51</sup> Reduced social participation and increased feelings of loneliness have also impacted adolescents who were largely unaffected by such concerns before the pandemic. Extroverted adolescents with previously high levels of social support were at a greater risk of developing feelings of loneliness during periods of social distancing.<sup>52</sup>

Parents and children alike noticed changes in the family climate during the mid-2020 period of the pandemic, with some parents experiencing increased exhaustion and stress and others feeling fewer burdens due to a slower pace of family life.<sup>53</sup> In particular, wellbeing among parents of preschool and primary school children was lower than before the pandemic.<sup>54</sup>

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<sup>46</sup> For German, see for an overview of suitable support methods and materials and their respective scientific basis. Existing programmes can be expanded on and implemented in other federal states, e.g. the “Lesen macht stark – Grundschule” (“Reading Gives You Strength – Primary Schools”) programme developed in Schleswig-Holstein (<https://nzi.lernnetz.de/index.php/lesen-grundschule.html>; accessed on: 11 June 2021). For maths, examples include the Zebra programme created to help children move away from using counting-based strategies to solve maths problems (Häsel-Weide et al. 2017) or “Auf dem Weg zum denkenden Rechnen” (“The Path to Numerical Fluency”) (Pfeng and Spremberg 2019), and “Mathe sicher können” (“Developing Confidence in Maths”) (Selter, Prediger, et al. 2014).

<sup>47</sup> See Slavin et al. 2011.

<sup>48</sup> See Langmeyer et al. 2020.

<sup>49</sup> See e.g. Andresen, Heyer et al. 2020; Rauschenberg et al. 2020.

<sup>50</sup> The Germany-wide COPSY longitudinal study on the impact of COVID-19 on psychological health surveyed a representative sample of more than 1,500 families (approx. 1,000 children aged 11 to 17 years and approx. 1,500 parents of 7- to 17-year-olds). To date, two in-depth representative online survey waves have been conducted on the psychological health and quality of life of children and adolescents and their families in Germany; the first took place in early summer 2020 and the second at the turn of the year 2020/21 with a response rate of >85 percent. A follow-up survey is planned for summer 2021.

<sup>51</sup> See Ravens-Sieberer, Kaman, Erhart, Devine et al. 2021.

<sup>52</sup> See Alt, Reim, and Walper 2021; Lee, Cadigan, and Rhew 2020.

<sup>53</sup> See e.g. Andresen, Lips et al. 2020.

<sup>54</sup> See Spieß, Huebener, and Pape 2021; Huebener, Waights et al. 2021. The greatest changes relative to 2018 emerged for families with children under the age of six years. For example, life satisfaction among parents with children aged under three years or between three and six years fell significantly relative to the group mean.

The pandemic has taken an especially heavy toll on children and adolescents in homes affected by domestic violence.<sup>55</sup> This situation has been compounded by two factors in particular. Firstly, pre-school and school closures mean that at-risk children are less likely to come into contact with people who could report welfare concerns to the local authorities.<sup>56</sup> Secondly, the pandemic has considerably increased the strain on families. Both of these factors put children at more risk of all forms of violence, including sexual violence.<sup>57</sup>

The psychosocial and emotional resources families can draw on to cope with the difficulties facing individual family members vary considerably. Children and adolescents are particularly affected by their family environment and the climate in which they are raised, especially when having to spend a lot of time at home, as has been the case during the pandemic. The Copsy study shows the pandemic has had a particularly negative effect on children and adolescents who receive little support at home, whose parents spend little time with them, and whose worries and problems are not heard. This group has experienced a significant drop in wellbeing and is at greater risk of mental disorders, anxiety and symptoms of depression.<sup>58</sup>

### Recommendations for action

To improve social interactions and socioemotional development after the pandemic, especially in families with few resources, we recommend the following:

8. Improve the information provided on local and/or online help and support initiatives<sup>59</sup> and mentoring programmes<sup>60</sup> to promote socioemotional development<sup>61</sup> and improve educational mobility. Although reliable findings on the critical and sensitive periods for socioemotional development are still rare, several recent studies show that mentoring is particularly beneficial for the socioemotional development<sup>62</sup> and educational mobility<sup>63</sup> of children from families with limited socioeconomic resources.
9. Give educational and teaching staff support and training (e.g. materials) to make it easier for them to talk to children about their experiences during the pandemic and to help them recognise

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<sup>55</sup> See Fegert et al. 2020, who draw on earlier studies to raise awareness of how both domestic violence against partners and physical, emotional and sexual violence against children and adolescents increase during economic recessions (Schneider, Waldfogel, and Brooks-Gunn 2017). Several studies assume that domestic violence – including against children – has risen (e.g. Peterman et al. 2020; Usher et al. 2020). A study by Lawson, Piel, and Simon (2020) from the USA provides empirical evidence that one parent losing their job during the pandemic is a significant risk factor for child maltreatment. In particular, social isolation leads to a greater prevalence of domestic violence, including against children (overview of studies from various countries: Usher et al. 2020).

<sup>56</sup> The drop in the number of medical child protection cases in Germany (minus 5 percent in outpatient child abuse clinics and minus 20 percent in paediatric inpatient departments) supports the assumption that the number of unreported cases has grown (Heimann et al. 2021).

<sup>57</sup> See Amarel et al. 2020.

<sup>58</sup> See Ravens-Sieberer, Kaman, Erhart, Devine et al. 2021; Ravens-Sieberer, Kaman, Otto et al. 2021; Ravens-Sieberer, Kaman, Erhart, Otto et al. 2021.

<sup>59</sup> See “Neunter Familienbericht – Eltern sein in Deutschland” (“Ninth Family Report – Parenting in Germany”) 2021.

<sup>60</sup> Mentoring programmes are frequently based on the notion of “informal learning”. Instead of being given explicit instruction, children receive individual attention and take part in recreational activities (play, arts and crafts or sport) to help them learn to manage everyday life and overcome challenges.

<sup>61</sup> Heckman, Pinto, and Savelyev (2013) show that investments in children’s socioemotional development can have a longer lasting effect than focusing on cognitive skills alone.

<sup>62</sup> See Kosse et al. 2020.

<sup>63</sup> The *Balu und Du* mentoring programme has significantly increased the proportion of children who have been accepted into an academic-track secondary school straight after primary school (Falk, Kosse, and Pinger 2020).

whether children need more professional support. To ensure that children and adolescents receive appropriate support tailored to their individual needs, assistance should also be provided by other specialists, especially school social workers, school psychologists and child and youth welfare services, as well as by retired educational and teaching staff.

10. Create and expand structural opportunities for children and adolescents to become actively involved in developing and implementing measures, rather than simply being passive recipients of those measures.

### 2.3 Physical activity

Physical activity supports physical, mental and social health.<sup>64</sup> It reduces the risk of numerous chronic conditions<sup>65</sup>, such as type 2 diabetes, typically by 20 to 30 percent,<sup>66</sup> and alleviates the symptoms of depression and anxiety.<sup>67</sup> Being physically active also helps people to build resources (e.g. social and motor skills) and to improve resilience. At the other end of the spectrum, there is a strong correlation between inactivity and excess weight and obesity<sup>68</sup> as well as many other chronic diseases.<sup>69</sup>

Even before the pandemic, the levels of physical activity among children and adolescents in Germany were low, with only 26 percent meeting the WHO's recommendation of at least 60 minutes of moderate-to-vigorous-intensity exercise per day.<sup>70</sup> This lack of physical activity worsened during the pandemic, as shown by data collected as part of the longitudinal Motorik-Modul (MoMo) study<sup>71</sup> – a submodule of the KiGGS German Health Interview and Examination Survey for Children and Adolescents conducted by the Robert Koch Institute: According to a survey carried out in late January/early February 2021, daily physical activity levels among children and adolescents fell considerably during the second lockdown (from 146.8 minutes per day during the first lockdown to 62.2 minutes per day during the second) and were significantly lower than the pre-pandemic level (108.8 minutes per day).<sup>72</sup> During the pandemic, the children who were least active were those living in urban areas in flats with no access to a garden.<sup>73</sup> Overall, the amount of time spent doing organised and unorganised sport dropped from 32.5 minutes per day before the pandemic to 13.6 minutes per day during the second lockdown.<sup>74</sup> The decline in higher intensity activities was particularly sharp. Furthermore, the time spent sitting down or inactive rose dramatically, as reflected by the increase in recreational screen time from 133 minutes per day to 222 minutes per day (second lockdown).<sup>75</sup>

#### Recommendations for action

In view of these findings on the lack of physical activity among children and adolescents and in an effort to help as many children and adolescents as possible to meet the World Health Organization's

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<sup>64</sup> See Timmons et al. 2012; Janssen and LeBlanc 2010.

<sup>65</sup> See Poitras et al. 2016; Ortega et al. 2018.

<sup>66</sup> See Rhodes et al. 2017.

<sup>67</sup> See Rebar et al. 2015.

<sup>68</sup> See Jochem, Schmid, and Leitzmann 2018.

<sup>69</sup> For an overview, see Leitzmann, Jochem, and Schmid (2018).

<sup>70</sup> See Robert Koch Institute 2020.

<sup>71</sup> See Woll et al. 2021.

<sup>72</sup> See Schmidt et al. 2021.

<sup>73</sup> See Schmidt et al. 2021.

<sup>74</sup> See Schmidt et al. 2021.

<sup>75</sup> See Schmidt et al. 2021.

recommendation of at least one hour of moderate-to-vigorous-intensity exercise a day, we recommend the following:

11. Develop an infrastructure which encourages physical activity among children and adolescents, ideally including daily exercise in preschools and schools and comprehensive programmes to promote a healthy lifestyle (nutrition, sleep, physical activity) in both preschools and schools.
12. Assess the motor skills of all children and adolescents in educational institutions using validated and standardised early diagnostic tests, enabling motor skills disorders to be detected in good time.<sup>76</sup>

## 2.4 Wellbeing and psychological situation

Mental disorders, including substance abuse and self-harm, resulted in 219,740 DALYs (disability-adjusted life years) being lost due to ill health among children and adolescents aged 5 to 19 years in Germany in 2019, making them the leading cause of disease burden in this age group. By means of comparison, the second most frequent cause – skin conditions – led to 107,277 healthy years of life being lost.<sup>77</sup> Even before the pandemic, data suggested that children with low socioeconomic status and children of parents with poor mental health are particularly adversely affected.<sup>78</sup> There are also indications that many children and adolescents with mental health problems receive insufficient psychotherapeutic treatment.<sup>79</sup>

There is currently no reliable information on whether more children and adolescents were diagnosed with mental illness or suicidal ideation as a result of the COVID-19 pandemic or how the situation is developing. At present, sound empirical studies on the psychological impact of the COVID-19 pandemic are available primarily for the first lockdown until around May 2020. In a representative longitudinal survey, approximately 35 percent of children and adolescents (aged 10 to 17 years) and 30 percent of their parents reported that their level of psychological stress had risen during the first lockdown relative to pre-pandemic levels.<sup>80</sup> Another longitudinal study found that 39 percent of children and adolescents (aged 9 to 19 years) had experienced a decrease in general psychological wellbeing since the onset of the pandemic.<sup>81</sup> A prospective longitudinal study involving adolescents from Norway showed that psychological distress (anxiety and symptoms of depression) increased slightly during the pandemic, particularly among girls, adolescents with pre-existing mental health problems and those living in a single-parent household.<sup>82</sup> The COPSY study<sup>83</sup> conducted in Germany found evidence of decreased wellbeing and quality of life, increased psychological impairments such as hyperactivity and emotional problems, and more psychosomatic symptoms among many children and adolescents. A comparison of data collected during the first wave of the study in May/June 2020 and the second wave in December 2020/January 2021 showed an increase in the perceived burden of the

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<sup>76</sup> See Blank 2019.

<sup>77</sup> See Global Burden of Disease Collaborative Network 2020.

<sup>78</sup> See Klipker et al. 2018; Klasen et al. 2017.

<sup>79</sup> See Klasen et al. 2017.

<sup>80</sup> See Paschke et al. 2021.

<sup>81</sup> See Vogel et al. 2021.

<sup>82</sup> See Hafstad et al. 2021.

<sup>83</sup> See Ravens-Sieberer, Kaman, Erhart, Devine et al. 2021; Ravens-Sieberer, Kaman, Erhart, Otto et al. 2021; Ravens-Sieberer, Kaman, Otto et al. 2021.

pandemic as well as more pronounced symptoms of depression, such as hopelessness, low mood and a lack of energy.<sup>84</sup>

It is important to take into account that no reliable conclusions can currently be drawn about the long-term effects of these subjective perceptions at a specific point in time. In light of the potential for resilience among most children and adolescents, it could be argued that the situation will result in few additional clinical disorders. However, extrapolating from the results of the second wave of the COPSYS study and considering reports on the healthcare currently available for children and adolescents with psychological disorders, it seems likely that the medical care provision for this group will need to be stepped up. Indeed, there were already indications of a lack of mental healthcare services for this group before the pandemic.<sup>85</sup>

How the COVID-19 pandemic impinges on wellbeing and mental health depends on a range of risk factors. Younger children<sup>86</sup> and girls<sup>87</sup> are more adversely affected. Low socioeconomic status<sup>88</sup>, low parental education<sup>89</sup> and limited living space (< 20 m<sup>2</sup> per person)<sup>90</sup> elevate the risk of adverse psychological outcomes among children and adolescents, and more so in urban areas than in rural areas.<sup>91</sup> Other groups at risk of adverse psychological outcomes include children and adolescents with pre-existing mental health problems<sup>92</sup> or whose parents have a higher level of psychological burden.<sup>93</sup> Children with parents who are less accepting of emotional responses are also more likely to be adversely affected.<sup>94</sup>

### Recommendations for action

To counteract the potential impacts of the pandemic on the mental health of children and adolescents and to tackle the deficits in the early detection and treatment of mental health problems that predate the pandemic, we propose the following measures:

13. Provide educational staff in preschools and teaching staff in schools with training in how to recognise the signs of emerging mental health problems. This early-warning system should be flanked by further development of the existing infrastructure in the area of school social work.
14. Promote the importance of a healthy lifestyle in preschools and schools. The evidence-based recommendations made by the National Institute for Health and Care Excellence (UK) identify three supportive interventions for depression and anxiety disorders, the problems most commonly experienced by children and adolescents: regular exercise (up to 3 times a week), psychoeducation on sleep hygiene and psychoeducation on a healthy diet.

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<sup>84</sup> See Ravens-Sieberer, Kaman, Erhart, Otto et al. 2021.

<sup>85</sup> See Klasen et al. 2017.

<sup>86</sup> E.g. Kunzler et al. 2021; Ravens-Sieberer, Kaman, Erhart, Devine, Schlack, et al. 2021.

<sup>87</sup> E.g. Kunzler et al. 2021; Newlove-Delgado et al. 2021.

<sup>88</sup> See Paschke et al. 2021; Vogel et al. 2021.

<sup>89</sup> See Ravens-Sieberer, Kaman, Erhart, Devine et al. 2021.

<sup>90</sup> See Ravens-Sieberer, Kaman, Erhart, Devine et al. 2021.

<sup>91</sup> See Paschke et al. 2021.

<sup>92</sup> See Kunzler et al. 2021.

<sup>93</sup> See Newlove-Delgado et al. 2021; Calvano et al. 2021; Ravens-Sieberer, Kaman, Erhart, Otto et al. 2021. Children and adolescents whose parents have mental disorders are known to be significantly more likely to experience mental health problems themselves (McLaughlin et al. 2012)

<sup>94</sup> See Paschke et al. 2021.

15. Expand evidence-based measures in child and youth welfare services and evidence-based treatments for mental disorders among children and adolescents to further improve the outcomes of interventions for mental health problems. Therapy waiting times should be reduced.<sup>95</sup>

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<sup>95</sup> One way of achieving this is illustrated by the Improving Access to Psychological Therapies Initiative in England (<https://www.england.nhs.uk/mental-health/adults/iapt/>, accessed on: 10 June 2021).

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## 4 Contributors

### Members of the working group

- Prof. Dr. Sabine Andresen, Goethe University Frankfurt, Faculty of Educational Sciences, Institute of Social Pedagogy and Adult Education
- Prof. Dr. Armin Falk, University of Bonn, Laboratory for Experimental Economics, Director of the Behaviour and Inequality Research Institute
- Prof. Dr. Uta Frith, Emeritus Professor of Cognitive Development, University College London
- Prof. Dr. Jutta Gärtner, University Medical Center Göttingen, Centre for Paediatric and Adolescent Medicine
- Prof. Dr. Gesine Hansen, Hannover Medical School, Center for Pediatrics and Adolescent Medicine
- Prof. (ETHZ) Dr. Gerald Haug, President of the Leopoldina, Max Planck Institute for Chemistry, Mainz
- Prof. Dr. Ralph Hertwig, Max Planck Institute for Human Development, Center for Adaptive Rationality, Berlin
- Prof. Dr. Olaf Köller, Leibniz Institute for Science and Mathematics Education (IPN), Department of Educational Research and Educational Psychology
- Prof. Dr. Thomas Krieg, Vice President of the Leopoldina; Faculty of Medicine, University of Cologne
- Prof. Dr. Mareike Kunter, DIPF | Leibniz Institute for Research and Information in Education, Department of Teacher and Teaching Quality
- Prof. Dr. Birgit Leyendecker, Ruhr University Bochum, Faculty of Psychology, Working Group Child and Family Research
- Prof. Dr. Klaus Lieb, Chair of the Department of Psychiatry and Psychotherapy, University Medical Centre Mainz, Managing Director of the Leibniz Institute for Resilience Research
- Prof. Dr. Ulman Lindenberger, Max Planck Institute for Human Development, Department Lifespan Psychology, Berlin
- Prof. Dr. Jutta Mata, University of Mannheim, School of Social Sciences, Chair of Health Psychology
- Prof. Dr. Andreas Meyer-Lindenberg, Central Institute of Mental Health (ZI), Mannheim
- Prof. Dr. Pia Pinger, University of Cologne, Faculty of Management, Economics and Social Sciences, Department of Economics
- Prof. Dr. Ulrike Ravens-Sieberer, Medical Center Hamburg-Eppendorf (UKE), Head of Research Group, Department of Child and Adolescent Psychiatry and Psychotherapy
- Prof. Dr. Frank Rösler, University of Hamburg, Institute of Psychology
- Prof. Dr. Silvia Schneider, Ruhr University Bochum, Faculty of Psychology, Chair of Clinical Child and Adolescent Psychology
- Prof. Dr. Jürgen Schupp, Freie Universität Berlin, Institute of Sociology
- Prof. Dr. C. Katharina Spieß, German Institute for Economic Research (DIW), Education and Family Department
- Prof. Dr. Claus Vögele, University of Luxembourg, Faculty of Humanities, Education and Social Sciences

- Prof. Dr. Gert G. Wagner, German Institute for Economic Research (DIW Berlin), Max Planck Institute for Human Development, Berlin
- Prof. Dr. Sabine Walper, German Youth Institute (DJI), Munich
- Prof. Dr. Alexander Woll, Karlsruhe Institute of Technology, Institute of Sports and Sports Sciences
- Prof. Dr. Ludger Wößmann, ifo Institute – Leibniz Institute for Economic Research at the University of Munich

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#### **Scientific Officers in the working group**

- Dr. Kathrin Happe, Deputy Head of Department Science – Policy – Society at the Leopoldina
- Dr. Sandra Kumm, Presidential Office at the Leopoldina
- Dr. Stefanie Westermann, Department Science-Policy-Society Department at the Leopoldina

#### **Writing group**

- Dr. Kathrin Happe, Deputy Head of Department Science – Policy – Society at the Leopoldina
- Prof. Dr. Ralph Hertwig, Max Planck Institute for Human Development, Center for Adaptive Rationality, Berlin
- Prof. Dr. Thomas Krieg, Vice President of the Leopoldina; Faculty of Medicine, University of Cologne
- Dr. Sandra Kumm, Presidential Office at the Leopoldina
- Prof. Dr. Jutta Mata, University of Mannheim, School of Social Sciences, Chair of Health Psychology
- Prof. Dr. Frank Rösler, University of Hamburg, Institute of Psychology
- Dr. Stefanie Westermann, Department Science-Policy-Society Department at the Leopoldina

#### **Translation**

Peschel Communications GmbH, Freiburg (i.B.)

#### **Copy editing**

Susannah Goss, Max Planck Institute for Human Development, Berlin