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## Even less visible: disadvantaged children in disadvantaged countries

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### ABSTRACT

In this paper, we have a quick look at the profile of developmental research in terms of its study samples, and then turn our attention to the findings of research on the COVID-19 pandemic and climate change, suggesting a notable increase in the number of people experiencing significant economic difficulties and a widening gap between the wealthy and the poor. While this is obviously a cause of concern for scientists, practitioners and policymakers, we suggest that the digital revolution which accelerated even more with the COVID-19 pandemic may open new ways to support healthy development and psychological wellbeing in socio-economically or developmentally disadvantaged populations. Moreover, acceleration of the digital transformation may also allow us to study the human mind and behaviour in countries economically categorized as ‘under-developed’ or ‘developing’, and under-represented in psychological science. Taking the recent advancements as a base, we contemplate the possibility that major technological changes facilitated by the recent COVID-19 pandemic might allow us to meet the scientific and applied goals of psychology more successfully.

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We, as developmental psychologists, conduct research to elucidate how various factors play a role in shaping children’s psychological well-being and development. The information that we get from the results of these research studies not only helps us draw more accurate and comprehensive models of human development but also allows us to plan studies for supporting healthy development and psychological functioning. In these systematic attempts that utilize the tools of science, we pay attention to

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numerous events and environmental factors that are relevant to the development of human beings. In our approach to human development, we psychologists share a general agreement that one cannot understand development by disregarding the context. Hence, we attend not only to more specific influences on the child, such as parenting but also broader societal conditions. With such a viewpoint, we sometimes examine poverty and migrant contexts as well. However, we mostly conduct our research studies 'with' and 'on' children with typical development; a description that implies both typical biology and a typical rearing context. This propensity of developmental psychology makes it fall far short of reaching its ultimate goal, that is, to unveil the universal or at least common principles that govern human behaviour and mind.

In this paper, we have a brief look at the profile of developmental research in terms of its study samples, and then turn our attention to findings of research on the COVID-19 pandemic and climate change, suggesting a notable increase in the number of people experiencing significant economic difficulties and a widening gap between the wealthy and the poor. While this is obviously a cause of concern for scientists, practitioners, and policymakers, we suggest that the digital revolution, which accelerated with the COVID-19 pandemic, may open new ways to support psychological well-being and healthy development in socio-economically disadvantaged populations. Moreover, the acceleration of digital transformation and associated technology may also allow us to study the human mind and behaviour in countries categorized as economically 'under-developed' or 'developing', and under-represented in psychological science. Taking the recent advancements as a base, we contemplate the possibility that major technological changes facilitated by the recent COVID-19 pandemic may allow us to meet the scientific and applied goals of psychology more successfully. Below we review our extant knowledge and suggest hypotheses for further analysis and discussion.

## Majority world

According to the recent database of the Population Reference Bureau (PRB) (2021), the population in economically less developed countries is 6.566 billion from the overall 7.837 billion people in the world, indicating a vast majority of the global population is in less developed countries. These numbers tell us that although people in developing countries are

often characterized as a 'minority', they are actually the 'majority' (Kağıtçıbaşı, 2007). This is something that must be kept in mind as one considers the hard-fought knowledge that has been gained in psychology regarding general human development because the participants of most of the studies in the behavioural and psychological databases are from the Western, educated, industrialized, rich, and democratic (WEIRD) societies (Henrich et al., 2010). This means that the established findings could be a function of historical modernization processes in the West rather than a deliberate ethnocentric approach (Koops & de Winter, 2011), and therefore might misrepresent those in the developing world (Henrich et al., 2010). In the extant psychology literature, only a very small number of papers have participants from the 'majority world'. Thalmayer et al. (2021) examined the papers (3447) published in the six most prestigious journals of the psychology discipline<sup>1</sup> between 2014 and 2018, and found that overall, only 11% (comprised of people living in the United States, other English-speaking countries, and Western Europe) of the global population was represented as samples in these studies. Nielsen et al. (2017) investigated this pattern for papers (1582) published in three top developmental psychology journals<sup>2</sup> between 2006 and 2010; and reported that more than 90% of the participants in these papers were from English-speaking countries and European countries (as Henrich et al., 2010 called them, WEIRD).

In developmental psychology, one of the most well-known bodies of research conducted in non-WEIRD countries is the Romanian orphanage research, which revealed that many institution-reared children who grew up in severe deprivation had an impairment in cognitive abilities and manifested a variety of social and emotional difficulties, accompanied by changes in brain development (e.g., Nelson et al., 2014). Research on children residing in institutions in Turkey also found that they have delayed mental state understanding (Yağmurlu et al., 2005), as well as lower levels of executive functioning and receptive language compared to parent-reared children (Sumer-Büyükabacı et al., 2021). In psychology, our knowledge of the development of institution-reared children comes from less developed countries, probably because children who cannot be cared for by their parents in Western countries are placed in foster care or are adopted (Browne, 2005). However, otherwise, we rarely see that

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<sup>1</sup>*Developmental Psychology (DP), Journal of Personality and Social Psychology (JPSP), Journal of Abnormal Psychology (JAP), Journal of Family Psychology (JFP), Health Psychology (HP), and Journal of Educational Psychology (JEP).*

<sup>2</sup>*Child Development, Developmental Psychology, Developmental Science.*

Western researchers show interest in the development of children in the majority world, or that results on children in the majority world finding a place for publication in globally-read high-impact journals. Nevertheless, reports published by reputable organizations (e.g., UN committees) suggest that socio-economically disadvantaged children in the 'majority world' are getting larger as a result of events that affect the world globally such as the COVID-19 pandemic and climate change.

## Pandemics and consequences

World history has shown how dire the consequences of global pandemics can be. The Black Death (1346–1353) is considered to be the deadliest pandemic, reducing the global population from approximately 475 million to 350–375 million in the 14<sup>th</sup> century (United States Census Bureau, 2019). Spanish flu (1918 Influenza) was also a fatal global pandemic, with a generally accepted death rate estimated to be around 25 to 50 million (World Health Organization, 2013). Besides excessive mortality rates, pandemics have other significant and long-term consequences as well. Using longitudinal data, Almond (2006) reported that compared to those born immediately before and after the 1918 Influenza pandemic, the flu-born cohort had higher rates of physical disability, lower educational attainment, and lower lifetime income.

Having notable long-term consequences, pandemics are considered big events bringing significant transformation to the world. The same also holds for the COVID-19 pandemic. Current estimates demonstrate that, as of July 2022, there are 22 million excess deaths due to COVID-19 (The Economist & Solstad, S, 2021). This has been accompanied by global economic deterioration as well. Estimates show that another 97 million people live on less than \$1.90 per day in 2021 due to the pandemic. Although economic disparities are widening during this period in general, the worst impact of the pandemic is expected to be seen in the developing and poorer parts of the world (OECD, 2020; World Bank, 2021a). Further, the rebound has been unequal so far, with many of the poorest countries in the world falling behind (World Bank, 2021b). Based on the analysis of UNICEF (2021a), 574.8 million children were living in monetarily poor households. Compared to the pre-COVID period, more than two-thirds of families with children did not have earnings anymore and children living in poverty increased by 10% since the outbreak of the pandemic (UNICEF-World Bank, 2022).

## Risk factors and concerns

As implied above, a considerable number of children live in poor parts of the world. According to the World Bank Group and UNICEF (2016) analysis, the number of children living in extreme poverty is 356 million, implying 1/6th of the global child population, and 2/3rd of these children are from sub-Saharan Africa. Indeed, extreme poverty is more than twice as common among children as it is among adults (World Bank, 2020). These numbers point to an alarming situation as poverty is a major risk factor for varying levels of problems (e.g., difficulty, delay, deficiency) in all domains of development (physical, biological, cognitive, social, and emotional), and even more strongly so in early childhood (Brooks-Gunn & Duncan, 1997). Numerous findings in psychology have revealed that when poverty is experienced in infancy and childhood, its negative effects are much more notable, partly due to significant brain development and high neural plasticity in this period, and partly because of the necessity for sufficient nutrition and stimulation during this period for healthy brain development. Poverty brings about several stressors and disadvantages that work multiplicatively rather than additively (Evans & English, 2002). Thus, when risk factors come together, they influence children's development and well-being in exponential ways.

Recent research from eastern Turkey (Kara & Selçuk, 2020, 2021) where the poverty rate is the highest among all regions in the country, provided further empirical support for the role of multiple risk factors such as poverty, family violence and armed conflict in affecting children's cognitive development (executive functions, mental state understanding), social and emotional development, and psychological well-being (internalizing and externalizing problems). The samples in these studies were highly disadvantaged in terms of their social-economic background; the majority of the caregivers had at most a primary school diploma, some were illiterate, and the majority were unemployed and had a monthly income below the minimum wage.

These factors, poverty and armed conflict, influence children's development and well-being through indirect ways as well, such as by increasing migration. In 2020, the number of international migrants reached 281 million, 36 million of whom were children (United Nations, 2020). Further, accumulating findings of high levels of depression, anxiety, and PTSD in refugee and migrant child populations (e.g., Paudyal et al., 2021; Perkins et al., 2018) increase concerns and make a call for urgent attention

to the current state of poverty and for world events that are likely to intensify poverty in the near future.

One of the most serious concerns of today's world is climate change, which also plays a role in increased migration and impoverishment (McLeman & Smit, 2006). Its effects have consequences for the whole world, but once again, not equally. Global warming increases the likelihood of frequent natural disasters such as floods, wildfires, droughts, and storms, and the damage inflicted by natural disasters impacts low- and middle-income countries the most, especially their economies (Sebastian & Natalija, 2017). Therefore, climate change aggravates existing inequality and therefore emerges as another risk factor for the healthy psychological development of the socio-economically disadvantaged (Cianconi et al., 2020).

Of course, all these changes and their developmental and psychological consequences must be considered by taking the current situation into account, that is characterized by the staggering COVID-19 pandemic that widens the gap between wealthy and poor children, and worsens the situation for poor children by increasing malnutrition, abuse, school dropout, and health problems significantly (Borkowski et al., 2021; Fore et al., 2020; United Nations Children's Fund, 2020). Without a doubt, the more long-lasting the COVID-19 pandemic is, the more devastating it will be for disadvantaged people. The majority world, which has always received a limited proportion of global mental health support, is again experiencing more deficiency in this respect during the COVID-19 pandemic (Kola et al., 2021). Reports published by UNICEF (2021b) show that children comprise one of the most vulnerable groups in this period. They suffer from both significant developmental and educational delays, and also heightened levels of psychological difficulties such as anxiety, mood disorders, post-traumatic stress symptoms, and sleep and eating problems. Children with special educational needs are also among the most fragile populations, experiencing more emotional and behavioural difficulties than other children during the COVID-19 pandemic lockdowns (Morgül et al., 2022).

### **Technology is a tool**

These are serious concerns for children, humanity, and the world of course, which lead us to look for any foreseeable opportunities arising in this grim picture; opportunities to turn the direction of change from going backward to moving forward. Many times, the history of humanity has witnessed

downfalls and advancements going hand in hand. The COVID-19 pandemic is no exception. One of the groundbreaking advancements of this century is the invention of networking technology, the internet. Although this technology is not new and has already impacted our lives enormously (Knell, 2021), the COVID-19 pandemic demanded the usage of the internet in many domains immensely (Bentata, 2020). This change seen in numerous domains of life including education, health, work, business, online entertainment, and ICT (Information and Communications Technology) is sometimes considered as the start of a new era characterized by a digital revolution (Anandan et al., 2022). During such big global events as the COVID-19 pandemic, humanitarian collaboration among communities, online supportive activities, or digital civic engagement organizations can be initiated by ICTs which facilitate beyond country-level border collaboration (Yang et al., 2020).

This shift imposed by the pandemic introduces some risks in that there is evidence that potentially problematic internet usage (e.g., gaming and social media use) increased in low- and middle-income countries (Gjoneska et al., 2022). Nevertheless, the shift has also shown that through digital technology, we can deliver education and many other services (e.g., medical services where specialists who would never make it to outlying rural areas can nevertheless give expert advice, Monaghesh & Hajizadeh, 2020) to a large number of children – and actually people of all ages, at any time in many parts of the world (Dhawan, 2020). Following the pandemic, a global increase in internet usage of 12.8% occurred between 2020 and 2022, from 4.7 billion to 5.3 billion people (International Telecommunication Union, 2022). Internet users have grown unevenly through the pandemic, in some cases with modest growth (3.7% in Syria and 2.7% in Sweden), in some cases with more substantial growth (6.4% in Ghana, 5.1% in Russia, 6% in Turkey, 6.6% in the USA, 8.2% in India), and in some cases with very substantial growth (19.4% in China, 20.7% in Afghanistan) (DataReportal – Global Digital Insights, 2021; S. Kemp, 2020, S. Kemp, 2020, 2020c, 2022a, S. Kemp, 2022, S. Kemp, 2022).

The restrictive conditions of the pandemic necessitated the school system and students to rapidly adapt to online education. Remote teaching was already being used as an alternative pathway in education in some countries even before the COVID-19 pandemic, perhaps most extensively in China, with an aim to provide quality education for children of factory workers in rural parts of the country (Lai et al., 2015). Thus, China has successfully reduced the education gap between urban and



rural places through the integration of efficient technological systems (Tang et al., 2020). Computer-aided learning (CAL) and Information and Communication Technology (ICT) are both effective approaches the Chinese government has incorporated into their education system to enable high-quality education for all children, including those living in industrial zones of the country (Bai et al., 2016).

Efficiency in utilizing advanced technology for education and its widespread usage during the COVID-19 pandemic (Dhawan, 2020; Dishon, 2022) has led us to think that even when people are physically separated, when they are hundreds of miles apart, they can remain connected, and many things that used to require physical presence can be conducted through the internet as well. If so, we can also make use of this advanced technology for many things, such as providing health services to support the psychological well-being and development of people of all ages, especially in underserved communities. For instance, in China, due to COVID-19, online mental health surveys, mental health education programs, and psychological counselling services have started to be widely used (Liu et al., 2020).

One of the big challenges imposed by the COVID-19 pandemic was about continuing education and work while staying physically isolated, and a second was about receiving support from a distance to remain healthy. So, the usage of advanced technology to support well-being also emerged as a fundamental necessity and issue during the pandemic (Kluck et al., 2021; Shah et al., 2020). Various research studies have revealed a critical ability that allows us to perform well despite adversities, the ability of self-regulation. This ability allows us to control our emotions, thoughts, and behaviours and plays especially a key role in the development of social and emotional skills and psychological well-being in children who live in adverse conditions characterized by impoverishment and conflict (e.g., Kara & Selçuk, 2021; Sumer-Büyükbacı et al., 2021). The longitudinal study of Moffitt et al. (2011) in which over one thousand individuals from Dunedin, New Zealand were sampled and followed from birth to the age of 32, has shown that many positive outcomes throughout life could be predicted by early self-control ability, over and above IQ and socio-economic status. People who had higher self-regulation in childhood had fewer physical health problems, less substance dependence, fewer financial difficulties, and fewer criminal offences in their adulthood (Moffitt et al., 2011). Nevertheless, recent results from the Dunedin study (Richmond-Rakerd et al., 2021) revealed that self-

regulation was not entirely stable from childhood to mid-life (between 38 and 45 years), and the self-regulation ability in mid-life predicted better health-related, financial, and social outcomes, over and above IQ and socio-economic status, as well as self-regulation in the first decade of life. These findings are noteworthy; they suggest that self-regulation has high flexibility, is malleable and open to change, and can benefit from interventions even in adulthood.

Various studies have shown that alleviating the negative consequences of poverty is possible through supporting the self-regulation ability of children in disadvantaged contexts (e.g., Blair, 2010). In contrast, traumatic life events such as migration, familial violence, a chaotic home environment, and poverty have a very adverse influence on the development of self-regulation (Cicchetti & Toth, 2005; Loomis, 2020). High levels of stress affect the neural mechanisms underlying self-regulation. Nevertheless, interventions that support the improvement of self-regulation appear promising in tackling these adversities (Blair & Raver, 2016). Besides various face-to-face programmes, research shows that self-regulation may also be supported via online programmes, including some digital games specially designed to improve executive functions (e.g., inhibition and attention shifting) in youth (Farris et al., 2021; Homer et al., 2018).

It is remarkable that language development and self-regulation are interrelated, and language is even a foundation for self-regulatory skills (Bailey & Heritage, 2018). For instance, the vocabulary of 24-month-old toddlers predicted their self-regulation skills (Vallotton & Ayoub, 2011). Yet not all children are able to optimally develop their language. Children in poor households have worse language development compared to those from high SES households (Schwab & Lew-williams, 2016; Sumer-Büyükbacı et al., 2021) due to smaller vocabulary use, simpler structures, limited one-on-one interaction, and linguistic stimulation (Huttenlocher et al., 2007). Therefore, we must approach language development as a powerful tool to support self-regulation.

### **Mobile apps for supporting children's development and well-being**

The possibilities to improve the vocabulary use and communicative skills of children include informing parents, raising their awareness, and utilizing online programmes with children. There are useful mobile apps that are designed to support the language development of children, particularly those in early childhood and/or with special needs. For instance,

thanks to the CAL software, children with autism spectrum disorder (ASD) aged 3–4 years, enhanced their emotion understanding (Whalen et al., 2006). In another study, a CAL software, ‘Mind Reading’, improved emotion comprehension and recognition of children with ASD (Golan et al., 2010). ‘Yuudee’ is another digital platform that aims to support the linguistic abilities of children with ASD through interactive learning. By using these apps, difficulties such as a lack of qualified trainers, high financial costs, and time restraints can be tackled (UNICEF, 2019). Designing online spaces that allow sharing experiential knowledge and accessing support (emotional, instrumental, informational) also appears as a need for parents of children with autism (Gatos & Yantac, 2020).

As it was obvious in the variation of language development of children from different SES households, parents play an important role and should also be addressed. The ‘Parent Buddy’ app supports parents whose children are aged 0–6 years by focusing on health, nutrition and breastfeeding, early learning, responsive parenting, and the well-being of parents (UNICEF, 2020). Moreover, the Mother Child Education Foundation (n.d) in Turkey which targets children from birth to 6 years and their families, especially those from disadvantaged communities, developed the ‘First 6 Years’ app in 2014, to support parents through various useful digital content like interactive games as guidance for child-rearing. In sum, there are several digital apps targeting some groups, although unfortunately, these technologies are not accessible to everyone equally yet. Nevertheless, digital apps provide the potential for reaching more people in a world with challenging global concerns.

## Conclusion

This paper highlights research regarding children in disadvantaged contexts and makes suggestions for digital solutions by utilizing technology to support children’s development and well-being worldwide. Advanced technology allows us to share materials; it is useful not only due to real-time support and learning (which may actually be a weakness in some cases) but also due to the advantages it brings in asynchronous modes.

It is undeniable that we have global concerns such as climate change, a pandemic, and economic disparities. However, there are also opportunities made available by digital transformation. By means of advanced technologies, digital collaboration is possible between global institutions (e.g., UNICEF), universities, research institutes, and local professionals and

governments. It can be actualized in various ways, including online research, consultations, seminars, or computer-aided programs and digital applications. Academics, practitioners, and policymakers can and must use these opportunities to learn more about and support the development and well-being of children in different parts of the world. Technology is a tool that we can use to increase the welfare of people, especially the ones that were so far beyond our reach, the *less visible* ones. However, now via advanced technology, they are becoming more accessible, increasing our responsibility to recognize them and care for them.

This paper takes a quick look at several issues that appear to be related to the topic of human development and functioning in different ways and makes some claims and suggestions to facilitate a new perspective on how we can use our resources to attain the valuable scientific and applied goals of psychology.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

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