The intensive use of digital media may not be harmful to mental health

A UFRGS research points out that, differently from what previous studies indicate, the use of screens has little impact on the mental state of young people

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By Thiago Sória

Photo: Denise Helfenstein

The scientific literature has pointed out the length of use of digital media as a cause of psychopathologies (mental disorders and symptoms, anxiety, depression) or, then, worse mental health in general. Counterintuitively, a UFRGS study on the influence of screens on the psychological health of children and young people showed that digital media practically does not cause mental health problems. The researchers have observed that existing symptoms lead to greater use of these media. In other words, the study points out that digital media is used because the user is anxious, and not the other way around.

The research seeks to collect information about the psychic state and investigate the trajectories of cognition and mental health of young people. To analyze this relationship, the group of researchers measured the cognitive development and mental health variables of 2,500 young people from municipal schools in Porto Alegre and São Paulo in two timeframes: between 2010/2011 and 2013/2014. The article *Screen time and psychopathology: investigating directionality using cross-lagged panel models*, resulting from the study, is in the preprint phase and is signed by professors from UFRGS, USP, and Unifesp who collaborate with the project "Brazilian High-Risk Cohort Study for Childhood Psychiatric Disorders", from the National Institute of Developmental Psychiatry for Children and Adolescents (INPD). Giovanni Salum, professor at the Faculty of Medical Sciences and the Graduate Program in Psychiatry at UFRGS, is the current deputy coordinator of the Institute and one of the authors of the article.

One of the project's researchers, Patrícia Bado, post-doctoral student of the Graduate Program in Psychiatry at the Hospital de Clínicas de Porto Alegre (HCPA/UFRGS), reports that several studies indicate a strong or direct relationship between the psychopathology presented by young people and the use they make of screens. "Many studies show that [the two variables] are related, but they do not provide a model to show what pulls what, what is the cause," she explains.

Research model

The researcher says that these studies were generally punctual and analyzed a more specific case. The model applied by the Cohort, named 'cross-lagged model', tries to estimate the influence of one variable on the other over time and is unique in having a vast longitudinal database, which can be "cleaned" and corrected when analyzed. Bado explains that this is possible because the variables can be self-compared over time. For example, studies used to relate two factors – the use of digital media and mental health – in a person or analysis group.

The variation of the two elements was given only as cause and effect, i.e., if the person used more digital media and had aggravated mental health, it was concluded that the cause was the use of screens. However, by comparing a variable with itself, depending on the variation it has, one can break the direct causality between, in this case, screen time and mental health. "It is possible to estimate how much predisposed to worse mental health those who use more screens are or how much predisposed to the use of screens those who have worse mental health are. You can estimate the direction, the causality between these effects," says Bado. It is just because the symptoms also progress on their own that research shows how small the influence of screens on mental health is.

Sample selection

The sample of 2,500 young people was obtained in 2010, from questionnaires and interviews with parents and guardians to whom the researchers presented the project, which seeks to expand knowledge about mental health in childhood and provide early diagnosis. At the end of the selection, part of the participants was considered to be at high risk for developing some psychopathology, and another part was selected randomly. "That is why it is called the High-Risk Cohort because some children were selected based on their high-risk score seen in the questionnaires," elucidates the researcher.

The objective is to obtain psychopathological, neuroimaging, and genetic information, so that it is possible to investigate typical and atypical trajectories in the cognition and mental health of young people. Bado explains that a series of interviews were carried out, investigating psychological variables, school data, and the daily time spent in front of computers, cell phones, television, and video games. This phase was called by the researchers "t0", and three years later the variables were measured again. New waves of collection continue to happen. "In this way, it is possible to understand and compare risk and protective factors for normal and healthy development, which also creates the possibility of intervening and preventing soon if there is a problem," she explains. From this, it was also possible to infer how and how much each factor influences another – in the case of this study –, how screen time and mental health correlate.

Social isolation and its effects

Recent research, according to Bado, shows that the covid-19 pandemic and social isolation have implications for the mental health of the general population. Noting that the analysis of data collected during the last stage of the Cohort's collection – ascertained in the context of the pandemic – has not been completed yet, the researcher states that the current moment is an example of the "cleaning" of the data scenario, which is possible in the model used in the study: "In the situation of social isolation, it is difficult to relate the variables directly, because, although screen time and mental health are related, the context has altered both variables, and they are not simply the cause of each other. In that sense, they have just changed".

Bado adds that quarantine is a good example of how well digital technologies can be used. "It is a very rich time to learn about how to use them. Mental health is at a low level because of isolation, we are social beings. Screens are hardly the point. The distinction between what is bad use and what is healthy, productive, has become clearer". For the neuroscientist, there is a pessimistic and fear-laden trend in research that seeks to harm the use of new technologies. "Many studies on screens and the internet would be another chapter in the Sisyphus Cycle, while efforts could be directed towards understanding the activities developed with them, in addition to the benefits. This was also seen with the advent of television and radio." She points out that one can talk in an educational way about what is being done, in what environment the activity is being developed, and what is the dynamics around the people who use the technologies.

The researcher explains that it may be more relevant to perceive how children and adolescents use screens than how much they use. Repetitive and pointless behaviors, procrastination, and isolation from the screens happen when health is not very good. "Our study showed that you are not anxious when using digital media, but that you use that media because you are anxious. While, on the other hand, it is possible to spend a lot of time doing activities that do not mean a bad mental state, playing with friends, studying or enjoying other leisure options," she says.

Database available for collaborative science

The information collected over these years by the **Brazilian High-Risk Cohort** Study for Childhood **Psychiatric Disorders** composes a large database. "The data is open – not available, but any citizen of the world can ask for it. The idea is a collaborative science," explains Bado. She says that the Cohort has an online repository of information in the Open Science Framework where people can look and compare their research. According to the researcher, unlike working with experiments, with this bank you can come up with some questions and find answers. The sample is vast and overturns common criticisms to psychiatric studies, as when they say that the analysis was punctual, or that the participants already had problems and that is why they were part of the research. "We have very interesting data, a longitudinal and comprehensive work," she stresses.

Bado reports that other studies are conducted with this data, investigating several fronts, such as the performance of children and adolescents in schools or how much genetics influences mental health. Newer researchers are looking at mobile devices – which updates the screen time variable. With the conclusion of the article, the scientist reveals that now the Cohort project intends to continue accompanying its participants, including their children, to better analyze the genetic arm in this environment. Blood and neuroimaging tests have already been done on a subsample in the last collection wave.

Scientific Article

BADO, Patrícia et al. Screen time and psychopathology: investigating directionality using cross-lagged panel models. Available at: https://psyarxiv.com/q8tur/.

Translated into English by Thomaz Torres Teixeira, under the supervision and translation revision of Elizamari R. Becker (PhD) – IL/UFRGS.