

The impact of Mightier extends beyond kids: Improving caregiver wellbeing and work engagement

Alyssa Peechatka PhD, Daniel Gutierrez,
Jessica Ragnio MSW, and Jason Kahn PhD

MIGHTIER

Key Findings

With a lack of data on the impact of children's mental health on their caregiver's careers, Mightier set out to study both the relationship between pediatric mental health needs and parent employment and wellbeing and employment outcomes associated with the introduction of a digital intervention.

Pediatric mental health impacts caregiver careers:

Child mental health has significant impact on caregiver career choices, engagement at work and absenteeism, with 60-80% of caregivers endorsing feeling distracted, interrupted, and like they don't perform their best at work.

Improvement with Mightier:

- After just 12 weeks of playing Mightier at home, 83% of caregivers reported that their child's emotional regulation capacity had improved.
- Caregivers reported significant improvements in their own stress and wellbeing that was correlated with their child's improvement.
- Caregivers reported significant improvements in both presenteeism and absenteeism after 12 weeks of their child's Mightier use.

Child mental health needs continue to grow

A 2021 advisory by the U.S. Surgeon General brought attention to the growing mental health needs of children and adolescents.¹ The prevalence of symptoms of depression and anxiety in American youth has reached 20-25%,² with ADHD diagnoses over 10%.³ Yet only 22% of those with elevated symptoms receive treatment.⁴ Mental health disorders have a far-reaching impact on children, beginning with their quality of life, extending through academic outcomes like high school graduation, college admission, and college completion,⁵ all the way to financial outcomes in adulthood.⁶

The poorly understood impact of caregiving: wellbeing and work

While we have become more attuned to the individual needs of children, the families that support them often receive less attention. Caregivers report increased strain and burden when caring for children with mental health needs,^{7,8,9} including negative impacts to their quality of life¹⁰ and physical health.¹¹ The field of healthcare often forgets that families operate as systems,¹² meaning that child wellbeing directly impacts caregiver wellbeing and vice versa.

As more and more families in the United States have primary caregivers who are also employees,¹³ it is increasingly important to understand the interplay between work and the family system. While research has discussed how parents' workplaces can contribute to child wellbeing,^{14,15} significantly less is known about how children's wellbeing impacts their parents at work. Yet it stands to reason that the burden of distress at home, especially related to child mental health, would bleed into the workplace.

The Mightier Caregiver Stress, Wellbeing, and Work Impact Study

In 2023, we set out to fill gaps in the existing understanding of the relationship between child mental and behavioral health, caregiver wellbeing, and work. We hoped to demonstrate that addressing a child's emotional wellbeing through an at-home digital intervention would improve not only the child's mental health but would also improve their parent's wellbeing

How we collected the data

As a routine part of the early user experience, all caregivers who purchased Mightier for their child were asked if they would like to receive more information about participating in optional studies to support Mightier's research. If caregivers indicated a desire for further study information, they were sent a recruitment email including brief information about the purpose of the study and a link to the online data collection platform.

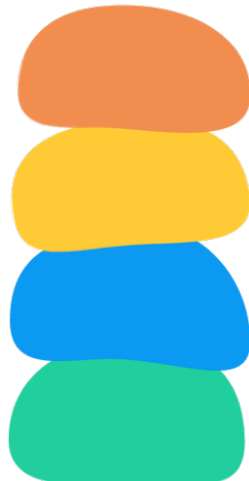
All data were collected via self-directed, online caregiver survey. Caregivers were asked to complete an informed consent and to answer questions regarding demographics, absenteeism, presenteeism, parenting stress,²⁶ and wellbeing²⁴ prior to starting the Mightier program. Twelve weeks after submitting the initial survey, participating caregivers were asked to complete the follow up survey, which included similar questions regarding absenteeism, presenteeism, the Parental Stress Scale (PSS), and the Flourishing Measure. For the 12 weeks between assessments all Mightier families received the usual customer experience and engaged with the Mightier program independently in their homes. Participants who completed the entire study were compensated for their time.



and engagement at work. Specifically, we were interested in four main types of impact on a parent’s career: reduction in hours, career stagnation, presenteeism, and absenteeism. All of which have negative consequences on both employees and employers.

Our study was designed to explore three main questions:

1. **How does child mental health impact performance at work?** Employers currently have little evidence on the impact of their employee’s children’s mental health needs. In this study we explored impacts on career stagnation, presenteeism, and absenteeism.
2. **How does child mental health impact parent wellbeing?** Given the established relationship between child and parent health, we explored the impact of child mental health on caregiver’s stress and overall wellbeing.
3. **Can child-focused interventions improve parent wellbeing? Does that improvement extend to the workplace?** Employers provide a constellation of benefits to employees. Can an in-home, digital mental health intervention aimed at children change parent wellbeing and employee engagement?



| Behavior | Description |
|---------------------------|---|
| Reduction in hours | Employees intentionally reduce the amount of time at work to facilitate care needs for a child. |
| Career Stagnation | Employees do not seek career advancement or increased responsibility to facilitate caring for a child. |
| Absenteeism | Employees do not arrive at work, either missing whole or partial days ^{16,17} due to child needs. |
| Presenteeism | Employees' ability to be engaged at work, ¹⁸ impacted by distraction, worry, or urgent interruptions or requests for time. |

A disproportionate impact on mothers: Demographics of the study

A group of 379 caregivers completed our baseline assessment prior to playing Mightier for the first time. 87.6% of these participants identified as female. Additionally, the majority of participants identified as white (89.7%) and non-Hispanic or Latino (94%), with an average age of 39 (range 25-65, Mode = 40). This heavily female-skewed response distribution underscores that mothers are typically the primary caregivers for children¹⁹ and are still largely responsible for managing their

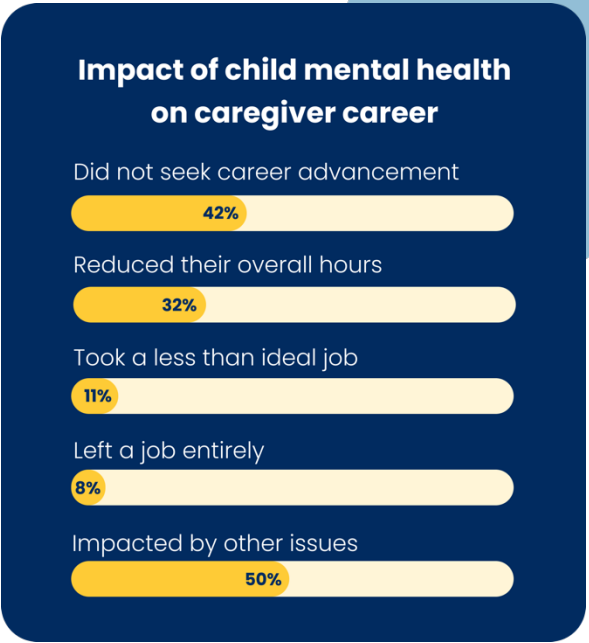


children’s mental health care, including solutions like Mightier. This is consistent with other recent findings, indicating that mothers continue to spend about twice the amount of time on childcare than fathers do, including management tasks like researching, scheduling, and following up on healthcare needs.²⁰

Caregivers are making career choices based on their children’s mental and behavioral health

With advances in communication technology and the rise of working from home, our professional and personal lives have become increasingly integrated. Where a voicemail from the school nurse left on a desk phone was once the only way to reach parents during the workday, we now have cell phones that ring on our laptops (and our wrists) and apps that send us pictures of our kids’ crafts at daycare. For parents who balance work and childcare, oftentimes reaching out to a child’s therapist to reschedule an appointment or advocating for accommodations at school *has* to happen during the hours of 9-5. It’s important to note that these changes are not ubiquitously bad. In many ways this accessibility and cultural shift has allowed more primary caregivers to engage in the workforce – quite the boon in regard to talent for employers. However, we suspect that it is further blurring the lines between professional and personal lives, such that employers would benefit from better understanding and supporting their caregiver employees.

Out of the 379 caregivers who completed the baseline survey, 21% of caregivers reported that they were not employed, 16% indicated that they were employed part time, and 63% were employed full time. To begin, we asked caregivers who are currently employed in some capacity to help us understand if, and how, their child’s mental and behavioral health has impacted their career. In total 69% (n= 299) of our working sample reported that their child’s behavioral or mental health had negatively impacted their career. Of that group, 42% stated that they didn’t seek career advancement because of it. Almost a third (32%) indicated that they reduced their overall hours at work and 11% took a less-than-ideal job. Surprisingly, 8% reported that they left a job entirely due to their child’s mental or behavioral health. Importantly these statistics do not adequately capture caregivers who might have already left the workforce to support their children, opening the possibility of even greater impact of child mental health on parent’s careers than described here.



The boundary between home and work is blurry for most caregivers

To better understand exactly how a child's mental and behavioral health impacts caregivers at work, we examined not only the usual metric of absenteeism, but also presenteeism. Specifically, we asked all our working caregivers to rate how much caring for their child's mental and behavioral health distracted them from their work, interrupted their work, and impacted the quality of their work within the month prior to the survey.

A whopping 83% of caregivers* indicated that they felt distracted at work by worry about their child's mental or behavioral health and almost three-quarters (73%) endorsed that their work had been interrupted to provide mental or behavioral health related support.

This distinction is important, because it highlights that not all impact can be measured in tangible interruptions like phone calls about a child's behavior at school or being late because of a difficult morning. It suggests that the emotional burden of fears, anxieties, frustrations, and guilt related to parenting is remarkably widespread and potentially just as impactful as actual time away from the job. On top of simply reporting the presence of distraction and interruption, 60% of caregivers reported that their child's mental health has negatively impacted the quality of their work.

Baseline impact of child mental health on presenteeism

83% reported being distracted at work

73% reported interruptions at work

60% reported negative impact to work quality

When it comes to absenteeism, 38% of caregivers reported missing two or more days within the month prior to the survey to care for their child's mental or behavioral health needs. Across the subsample of employed participants who completed the study (n = 96), this meant a total 128 total days of work lost to child mental health care. One might argue that these days would simply be a part of PTO and therefore not a loss of productivity for an employer, however this time off is not spent resting, rejuvenating, or engaging in enjoyable activities. These missed days are not planned vacations with one's workload neatly tucked away until they return, meaning that parents are likely sacrificing elsewhere to ensure that they do not fall behind. Increased stress related to unexpected absenteeism puts these parents at higher risk of burnout and dissatisfaction.

* For a most accurate comparison to the follow up data, these figures represent responses only from caregivers who completed both baseline and follow up surveys and who indicated that they were employed in either a part or full-time capacity. N = 106 for work interruption and distraction and n = 107 for work quality.



Families are a system. Interventions, like Mightier, that are focused on kids improve the lives of their caregivers, too

The mental healthcare system in the United States is modeled after the physical healthcare system, diagnosing and treating patients on an individual level. In many ways this makes sense for physical health. When a child breaks their ankle, they are unquestionably the best candidate to receive care and their broken ankle has no bearing on the physical health of their family. However, this model starts to break down when considering behavioral health and becomes even more questionable when examining mental health.

When children are involved, we tend to think a bit more systematically. We do our best to adapt school environments to suit learning needs and we debrief caregivers after therapy sessions with their child. We often treat parents as a conduit for their children's growth, instructing them on how to most effectively respond to meltdowns or reinforce adaptive behaviors. Family therapy does exist but is arguably greatly underutilized. However, even with kids, we rarely examine how an intervention with one family member impacts the family system.

Researchers at Mightier have long been interested in the concept of family systems, demonstrating that playing the game significantly improved not only child aggression but also reduced parent stress.²¹ While the current study provides a much-needed perspective on the interaction between child mental health and caregiver work-life that serves as a call to action for employees on supporting overall family wellbeing, we were also interested in understanding what happened *after* kids in the household engaged with the Mightier program for 12 weeks. We hypothesized when kids' emotional regulation became stronger, caregivers would benefit emotionally. Perhaps most interestingly we examined if that would improve their life at work, too.

What is Mightier?

Mightier is a digitally accessible, at-home, play-based biofeedback program designed for kids and for the adults who love them. Kids wear a heart rate monitor as they play, giving them immediate visual access to their physiological response to stress, frustration, or excitement during game play. Children are then introduced to various evidence-based relaxation strategies and are empowered to use these strategies to lower their heart rate. In-game reward systems are tied to this emotional regulation practice, encouraging kids to pay attention to their body and engage with calming strategies repeatedly. This process specifically strengthens children's emotional awareness and emotional regulation skills.



Born out of Boston Children's Hospital and Harvard Medical School, Mightier is clinically validated to help children build stronger emotional regulation skills through play.



Caregivers of kids who play Mightier report child emotional regulation improvement

After Mightier had been available in a family's home for 12 weeks, we asked parents to complete a follow up survey. In total, 147 participants[†] completed the follow up, with 101 commenting on their child's emotional regulation change throughout the program.

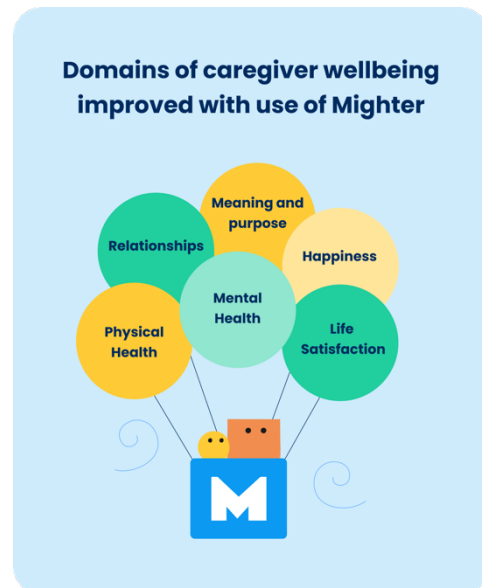
As with any in-home or self-directed intervention, engagement with Mightier varied amongst families. On average, families played 427 minutes of Mightier over the course of 12 weeks, with a median of 280 minutes and a range of 11-3201 minutes. To put this in context, on average these kids engaged with this intervention for the equivalent time of about 9.5 therapy sessions[‡] and our most highly engaged player topped out at just over 71.

Improvement in emotional regulation was measured using the single item Clinical Global Impression-Improvement (CGI-I) scale, adapted to be parent facing and to specifically ask about emotional regulation. Overall, 83.16% (n = 84) of caregivers reported their child's emotional regulation had improved in the time since they had begun to use Mightier, with 26.73% (n = 27) reporting that they had "Much" or "Very Much" improved.

The impact of Mightier extends to caregivers, as they reported increases in wellbeing and reductions in stress

Wholistic quality of life is notoriously difficult to define and measure due to its subjective, broad, and culturally defined nature. However, this type of overall wellbeing is increasingly acknowledged as a key aspect of health. In fact, recent evidence suggests that wellbeing causally affects health and longevity, even after controlling for health and socioeconomic status at baseline.²² Thus, we felt that caregiver wellbeing is an important and relevant outcome that could be influenced by child improvements described above.

Using a scale that examined six domains of wellbeing, including life satisfaction, physical and mental health, meaning and purpose, and relationship quality,²³ we observed a significant increase in overall caregiver wellbeing from baseline (M= 79.22) to follow up (M= 83.04, $t(146)= 3.02, p= .003$). This included significant improvements on domains measuring satisfaction and happiness ($t(144)= 5.35, p< .001$), physical and mental health ($t(146)= 4.28, p< .001$), meaning and purpose ($t(144)= 3.80, p< .001$), and close social relationships ($t(145)= 4.04, p< .001$). Caregivers did not report significant changes on domains measuring character and virtue ($t(145)= 1.70, p= .091$) or financial and material stability ($t(146)= 1.63, p= .105$), which demonstrates discriminant improvements that intuitively make sense in this context.



7

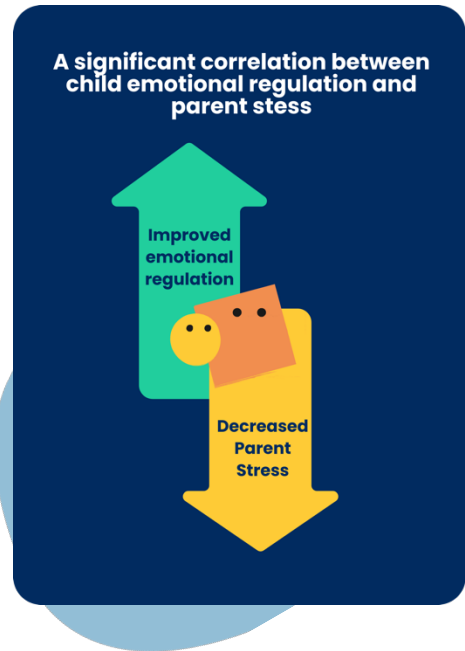
[†] This represents just under a 40% completion rate for the follow up survey. While this may seem like a high attrition rate for a structured study, this study design intentionally prioritized external validity. This means that 40% of baseline participants were not only still paying for the intervention but were engaged enough to respond to an email reminding them of participation.

[‡] Assumes therapy sessions are a standard 45 minutes.



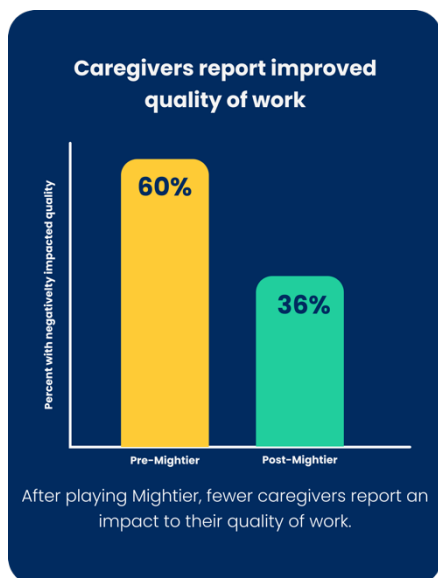
It is logical that a child's mental and behavioral health intervention could facilitate improved caregiver life satisfaction and relationships but is unlikely to improve financial stability of access to basic needs like food and housing. Furthermore, at baseline, 83% of all caregivers reported that their engagement in valued activities or relationships had been impacted by their child's mental or behavioral health. By the 12 week follow up, that number dropped by 23%.

Caregivers reported their own stress had decreased in that time as well, as PSS scores significantly decreased from baseline (M= 51.64) to 12 week follow up (M= 41.97; $t(146) = 7.76, p < .001$). More importantly, decrease in PSS scores was significantly correlated with parent CGI-I, such that larger decreases in parental stress were associated with greater improvements in child emotional regulation ($r_s = 0.29, p = .004$). These findings lend support for our hypothesis regarding child interventions having a significant impact on their family system, underscoring that we should be measuring whole family impact as an important part of individual interventions.



Caregiver and child improvements are reflected in improved workplace presenteeism and absenteeism

In addition to wellbeing and parenting stress, the 12-week follow up survey included work presenteeism and absenteeism questions. The goal was to examine if Mightier's impact on the family system extends to if, and how, a caregiver can show up for work. As it turns out, it does.



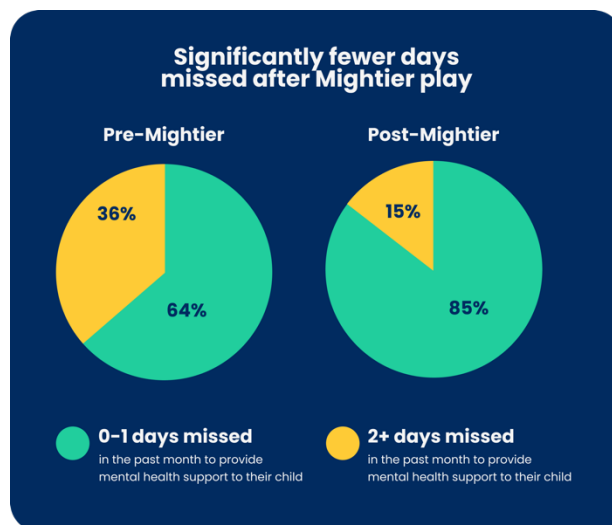
After having Mightier in the home for 12 weeks, caregivers reported a significant decrease in both work interruptions ($n = 106, z = -2.69, p = .007$) and feeling distracted by worries ($n = 106, z = -4.12, p < .001$) about their child related to caring for their mental or behavioral health within the prior month. These changes were both statistically significant and hold external relevance. At baseline, 72% of caregivers reported experiencing work interruptions related to their child's mental or behavioral health. By the follow up that number had dropped to 55%, with 17% fewer caregivers reporting interruptions to their workday over the month prior to the follow up than the month prior to the baseline. The decrease in caregiver distraction was slightly larger, with 21% fewer caregivers reporting feeling distracted at work, representing a reduction from 83% down to 62%.

Likely related to decreased interruption and distraction at work, caregiver reported impact on work quality decreased significantly as well ($n = 107, z = -3.50, p < .001$). Interestingly,



decrease in child mental and behavioral health impact on work quality was the largest change observed in the study, with 24% fewer caregivers reporting negative impact on work quality at follow up than at baseline, a decrease from 60% down to 36%. Together these data paint a compelling picture regarding how it feels to be a caregiver trying to balance work and family, especially when their kids need mental or behavioral health support.

Finally, we found that engaging with Mightier for 12 weeks resulted not only in improvements in caregiver's experiences of work-related impact, but tangible lost time. At baseline the group of 96 respondents reported a total of 128 days of work lost within the prior month to appointments, school refusal, suspensions, lack of adequate childcare, or similar due to mental or behavioral health. Overall, that meant that 36% reported missing two or more days for these reasons. By the follow up survey, the number of missed days dropped to 78, suggesting that Mightier's impact on child mental health contributed to saving a total of 50 days of work per month for this group. Similarly, the number of caregivers reporting two or more missed days dropped by more than half to 15%.



Study Summary

Mental health needs are on the rise for children and adolescents.¹ The mental healthcare system is increasingly focused on broadening access to, and options for, pediatric mental health care. Yet, the impact of pediatric mental and behavioral health challenges extends beyond the child and into the family system that loves, cares for, and bears the burden of finding support for them. Caregiver burden is often understudied and, as the makers of a pediatric digital mental health program, we sought to bridge that gap by focusing on caregivers in our most recent study. Our goal was to better understand how child mental and behavioral health impacts caregivers, especially in the context of their careers and to examine if using Mightier could improve not only their child's emotional regulation, but caregiver's own stress, wellbeing, and work life.

Although it's not surprising that caregivers are willing to alter their careers and their workdays for their children's wellbeing, the breadth and magnitude of the impact caregivers reported on their work life was remarkable. Caregivers reported altering their career plans, feeling distracted, interrupted, and like they don't perform their best at work at rates that ranged from 60-80%.

After just 12 weeks of playing Mightier at home, the large majority of caregivers reported that their child's emotional regulation capacity had improved. They simultaneously reported improvements to their own parental stress, which was directly correlated with child improvement. We also observed improvements in applicable domains of wellbeing and engagement in valued activities and relationships outside of the workplace. Moreover, caregivers reported significant improvements in



both presenteeism and absenteeism, meaning they were able to both be physically present and mentally attentive and engaged at work.

Due to the makeup of our sample, the findings presented in this paper are particularly relevant to mothers. These results are representative of the real world, as impacts of child mental and behavioral health are likely to have a disproportionate effect on mothers with the potential to shape an invisible employment discrimination that hurts both employers and employees. Employers are likely losing productivity and advancement of highly talented mothers, putting themselves at a disadvantage.²⁴ Therefore, they should be highly motivated to explore solutions that would aid mothers with managing the challenges of caregiving, including solutions to aid child mental and behavioral health.

It is important to note that this study design is not causal. It's not a randomized controlled trial with a strong comparison group and we did not measure what may have happened in the lives of these families in the 12 weeks that they were using Mightier or control for the other kinds of care they may have received. However, the study is powerful because of its external validity. These are real families who were searching for a solution to help their kids. They brought that solution home, were able to engage with it in a way that felt right for them, without the need for a highly trained professional, and experienced improvements that extended from the child all the way to a caregiver's work. Together these data underscore the importance of supporting whole family wellbeing and understanding that children's mental health and caregiver's mental health are fundamentally inseparable.

This study adds to the growing body of literature demonstrating that digital mental health has an important place in extending access to mental health care.²⁵ This study makes it clear that organizations hoping to support caregivers either in or out of an employment context could benefit from considering the far-reaching impact of pediatric-focused care.



References

- ¹ Murthy, V. (2021). Protecting Youth Mental Health, The U.S. Surgeon General's Advisory. Retrieved online from <https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf>
- ² Racine, N., McArthur, B. A., Cooke, J. E., Eirich, R., Zhu, J., & Madigan, S. (2021). Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19: a meta-analysis. *JAMA pediatrics*, 175(11), 1142-1150.
- ³ Bitsko, R. H. (2022). Mental health surveillance among children—United States, 2013–2019. *MMWR supplements*, 71.
- ⁴ Duong, M. T., Bruns, E. J., Lee, K., Cox, S., Coifman, J., Mayworm, A., & Lyon, A. R. (2021). Rates of mental health service utilization by children and adolescents in schools and other common service settings: A systematic review and meta-analysis. *Administration and Policy in Mental Health and Mental Health Services Research*, 48, 420-439.
- ⁵ Mojtabai, R., Stuart, E. A., Hwang, I., Eaton, W. W., Sampson, N., & Kessler, R. C. (2015). Long-term effects of mental disorders on educational attainment in the National Comorbidity Survey ten-year follow-up. *Social psychiatry and psychiatric epidemiology*, 50, 1577-1591.
- ⁶ Heckman, James J., and Paul A. LaFontaine. "The American high school graduation rate: Trends and levels." *The review of economics and statistics* 92.2 (2010): 244-262.
- ⁷ Carretero, S., Garcés, J., Ródenas, F., & Sanjosé, V. (2009). The informal caregiver's burden of dependent people: theory and empirical review. *Archives of gerontology and geriatrics*, 49(1), 74-79.
- ⁸ Mendenhall, A. N., & Mount, K. (2011). Parents of children with mental illness: Exploring the caregiver experience and caregiver-focused interventions. *Families in Society*, 92(2), 183-190
- ⁹ Shah, A. J., Wadoo, O., & Latoo, J. (2010). Psychological distress in carers of people with mental disorders. *British Journal of Medical Practitioners*, 3(3).
- ¹⁰ Leng, A., Xu, C., Nicholas, S., Nicholas, J., & Wang, J. (2019). Quality of life in caregivers of a family member with serious mental illness: Evidence from China. *Archives of psychiatric nursing*, 33(1), 23-29.
- ¹¹ Reed, M., Bedard, C., Perlman, C. M., Browne, D. T., & Ferro, M. A. (2023). Family functioning and health-related quality of life in parents of children with mental illness. *Journal of Child and Family Studies*, 32(11), 3366-3377.
- ¹² Cox, M. J., & Paley, B. (2003). Understanding families as systems. *Current directions in psychological science*, 12(5), 193-196.
- ¹³ Bureau of Labor Statistics. (2021). Current Population Survey Annual Averages and March CPS Annual Social and Economic Supplement 1975-2021. Women's Bureau.
- ¹⁴ Heinrich, C. J. (2014). Parents' employment and children's wellbeing. *The future of children*, 121-146.



-
- ¹⁵ Strazdins, L., Shipley, M., Clements, M., O'Brien, L. V., & Broom, D. H. (2010). Job quality and inequality: Parents' jobs and children's emotional and behavioural difficulties. *Social Science & Medicine*, 70(12), 2052-2060.
- ¹⁶ Muchinsky, P. M. (1977). Employee absenteeism: A review of the literature. *Journal of Vocational Behavior*, 10(3), 316-340.
- ¹⁷ Sagie, A. (1998). Employee absenteeism, organizational commitment, and job satisfaction: Another look. *Journal of Vocational Behavior*, 52(2), 156-171.
- ¹⁸ Schultz, A. B., & Edington, D. W. (2007). Employee health and presenteeism: a systematic review. *Journal of Occupational Rehabilitation*, 17, 547-579.
- ¹⁹ Sayer, L. C. (2016). Trends in women's and men's time use, 1965–2012: Back to the future?. *Gender and Couple Relationships*, 43-77.
- ²⁰ Wang, W. (2013, October 8). *Parents' time with kids more rewarding than paid work - and more exhausting*. Pew Research Center. <https://www.pewresearch.org/social-trends/2013/10/08/parents-time-with-kids-more-rewarding-than-paid-work-and-more-exhausting/>
- ²¹ Ducharme, P., Kahn, J., Vaudreuil, C., Gusman, M., Waber, D., Ross, A., ... & Gonzalez-Heydrich, J. (2021). A "proof of concept" randomized controlled trial of a video game requiring emotional regulation to augment anger control training. *Frontiers in Psychiatry*, 12, 591906.
- ²² Diener, E., & Chan, M. Y. (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being*, 3(1), 1-43.
- ²³ VanderWeele, T. J. (2017). On the promotion of human flourishing. *Proceedings of the National Academy of Sciences*, 114(31), 8148-8156.
- ²⁴ De Paola, M., Gioia, F., & Scoppa, V. (2022). Female leadership: Effectiveness and perception. *Journal of Economic Behavior & Organization*, 201, 134-162.
- ²⁵ Lehtimäki, S., Martic, J., Wahl, B., Foster, K. T., & Schwalbe, N. (2021). Evidence on digital mental health interventions for adolescents and young people: systematic overview. *JMIR mental health*, 8(4), e25847.
- ²⁶ Berry, J. O., & Jones, W. H. (1995). Parental Stress Scale (PSS).

