# What is the effect of the internet on eating disorder behaviors among Mexican youth?

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## Abstract

Eating disorders (EDs) are a major public health concern among youth, significantly impacting well-being. Despite correlations between social media and disordered eating, causal evidence on internet access and ED outcomes is scarce. This study provides the first causal estimates of household broadband internet access on ED behaviors in Mexican youth (11-19). Using ENSANUT (2012, 2018), IFT, and CONAPO data, a 2SLS instrumental variable approach exploits exogenous municipal broadband infrastructure deployment (2012-2018). Results show a significant positive effect: home internet access is linked to a 13% relative increase in generalized ED risk for the full sample. This effect is notably heterogeneous; adolescent girls face a substantial 26% relative increase, while boys show no significant change. Youth with lower education are also more vulnerable. These findings highlight that digital access can worsen vulnerabilities and health inequalities. The study urges prioritizing EDs in public health and developing targeted interventions for vulnerable youth in the digital age.

**Keywords:** Eating disorders, internet, youth mental health, broadband effect, eating disorder Mexico, eating disorder risk, eating disorder behaviors.

**JEL Classification:** I10, I12, J13, I18, L86

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# ¿Cuál es el efecto de internet sobre los comportamientos relacionados con los trastornos alimenticios entre los jóvenes mexicanos?

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## Resumen

Los trastornos de la conducta alimentaria (TCA) son una preocupación importante de salud pública entre los jóvenes, con gran impacto en su bienestar. A pesar de las correlaciones entre redes sociales y alimentación desordenada, la evidencia causal del acceso a internet sobre los TCA es escasa. Este estudio ofrece las primeras estimaciones causales del acceso a internet de banda ancha en el hogar sobre conductas de TCA en jóvenes mexicanos (11-19 años). Usando datos de ENSANUT (2012, 2018), IFT y CONAPO, un enfoque de variable instrumental 2SLS explota la variación exógena del despliegue de infraestructura municipal de internet (2012-2018). Los resultados muestran un efecto positivo: el acceso a internet se asocia con un aumento relativo del 13% en el riesgo generalizado de TCA para la muestra total. Este efecto es heterogéneo; las adolescentes enfrentan un aumento relativo del 26%, mientras que en niños no es significativo. Jóvenes con menor educación también son más vulnerables. Los hallazgos sugieren que el acceso digital puede exacerbar vulnerabilidades y desigualdades en salud. El estudio subraya la urgencia de priorizar los TCA en salud pública e intervenir en jóvenes vulnerables en la era digital.

**Palabras clave:** Trastornos de la conducta alimentaria, internet, salud mental juvenil, efecto banda ancha, trastornos alimentarios México, riesgo trastornos alimentarios, conductas trastornos alimentarios.

**Clasificación JEL:** I10, I12, J13, I18, L86.

# 1    Introduction

The increasing integration of digital technologies and the adoption of social media in the daily lives of young people raise fundamental questions about their vulnerability to the aesthetic and body ideals that are constantly promoted online. Currently, mental health problems in the youth population have escalated in importance, emerging as a critical area that, despite its significant impact, often receives insufficient attention on the public health agenda. Within this broader landscape of youth mental health, Eating Disorders (EDs) constitute a major concern, given the severity of their consequences on the quality of life, physical, and psychological well-being of those who suffer from them. The relevance of EDs extends beyond the immediate impact on eating behaviors; as highlighted by the World Economic Forum (2013), "Eating disorders are chronic, distressing and impede one's ability to function. They increase risk of depression, anxiety disorders, obsessive compulsive disorders, personality disorders, substance abuse, morbidity and future obesity" (World Economic Forum, 2013). For many, an activity as fundamental as eating transforms into a source of daily anguish and conflict. Addressing such conditions is crucial for improving overall youth mental well-being.

In this context, this study seeks to fill a critical gap in the literature by addressing the following research question: What is the effect of broadband internet service at home on the risk of eating disorders in the youth population aged 11-19 years old in Mexico? By focusing on EDs, we examine a specific, yet highly impactful, component of the broader youth mental health crisis.

While the potential influence of social media on body image concerns and eating behaviors is widely discussed, rigorously quantifying the causal effect of digital connectivity on mental health outcomes, particularly EDs as a specific manifestation, remains a challenge. Existing literature estimating causal effects on mental health is notably scarce. This study contributes to this developing field. While studies such as Colombo, Failache, and Querejeta (2025) represent important first steps in Latin America by estimating the causal effect of high-speed internet on broader socioemotional well-being, to the best of our knowledge, this study represents the first attempt to estimate the causal effect specifically on eating disorder outcomes. Much of the existing research on EDs stems from psychological fields, often relying on smaller samples and focusing primarily on correlations rather than establishing causal links. This work thus contributes uniquely to the nascent body of literature seeking to

understand the causal determinants of mental health conditions by providing causal estimates for EDs.

This study finds a statistically significant positive effect of household internet access on the risk of eating disorder behaviors among youth. Specifically, having broadband internet access at home is associated with a 13% relative increase in the risk of generalized eating disorder (ED) behaviors among Mexican youth aged 11 to 19. This effect is particularly pronounced for adolescent girls, among whom ED risk increased by 26%. Also, a positive and significant effect was found for youth with lower education levels completed after controlling for age, whereas no effect of internet exposure on ED behaviors was found for those with higher education.

To address the research question and establish a causal link, an empirical strategy based on an instrumental variable approach is implemented. This study exploits the introduction of broadband internet services that occurred naturally between 2012 and 2018 as an instrument, a period characterized by a significant expansion in internet infrastructure and adoption in Mexico. Specifically, the primary treatment variable of interest is broadband internet service availability at home. Thus, to address potential endogeneity issues associated with household-level internet adoption, we utilize the exogenous variation from our instrument. This municipal-level infrastructure development is assumed to influence the probability that a household within that municipality gains access to home internet service, but is otherwise uncorrelated with unobserved factors that directly affect individual-level ED risk or other mental health outcomes. This instrumental variable approach allows us to isolate the effect of having broadband internet access at home on the risk of developing eating disorders among youth, thereby shedding light on one pathway through which digital access may influence mental health.

This approach represents a significant contribution to the field of public health in Mexico for several reasons. Firstly, it quantitatively addresses a mental health problem of great relevance that, despite its prevalence, has been scarcely studied from a rigorous econometric perspective. Secondly, it leverages the availability of national-level data on ED behaviors, which have been systematically collected since 2006 but have been majorly ignored in this field. More importantly, by providing the first causal estimates of the impact of broadband internet access on ED risk in Mexico, this research seeks to underscore the urgency of integrating mental health issues, and particularly EDs, within the public health policy agenda,

providing solid empirical evidence that can inform resource allocation and the implementation of targeted interventions aimed at mitigating potential risks associated with digital connectivity and promoting youth mental well-being.

The remainder of this paper is structured as follows. Section 2 provides a review of the relevant literature on the causes of eating disorders, the relationship between social media and eating behaviors, and existing econometric approaches to causal estimation in mental health. Section 3 describes the background and deployment of internet infrastructure in Mexico during the study period. Section 4 details the data sources used in the analysis. Section 5 outlines the empirical strategy and identification approach. Section 6 presents the main results, including heterogeneous effects. Section 7 summarizes findings and opens discussion on the topic.

## 2 Literature Review

Eating disorders (EDs) are complex mental health conditions influenced by a confluence of genetic, psychological, environmental, and sociocultural factors (Culbert, Racine, and Klump, 2015). Research underscores that the etiology of EDs is complex and likely involves the interaction of multiple causal factors, with biopsychosocial genetic data suggesting substantial genetic and environmental influences on risk (Culbert et al., 2015). Confirmed risk factors include nonspecific personality characteristics such as negative emotionality, perfectionism, and negative urgency. Crucially for this study, sociocultural influences, including exposure to media, pressure for thinness, internalization of the thin ideal, and thinness expectations, are also identified as confirmed risks for disordered eating symptoms and/or EDs (Culbert et al., 2015). These sociocultural factors are proposed as potential explanations for observed gender and age differences in ED rates.

This study is particularly interested in quantifying the impact of one significant sociocultural pathway: exposure to media and social media facilitated by internet access. The expansion of these platforms has become a pervasive environment where individuals, particularly youth, are exposed to a constant stream of visual content and social interactions. A systematic review by Padín, Friero, González-Rodríguez, Verde-Diego, and Vázquez-Pérez (2021) synthesized findings from numerous studies investigating the relationship between social media use and eating disorder psychopathology. Their review highlights consistent correlations between time spent on social media, especially image-based platforms, and the

development of ED psychopathology, problematic eating behaviors, body image concerns, low self-esteem, and symptoms of EDs (Padín et al., 2021). Key factors identified include the type of interaction (commenting, sharing photos), comparison with peers, following specific accounts (health, beauty), and feedback received on selfies. While this literature establishes strong associations and explores potential mechanisms through which social media may influence body image and eating disorder risk, the vast majority of studies in this domain are correlational, making it challenging to infer causality. This leaves a critical gap in understanding the direct causal impact of digital connectivity on ED risk.

Estimating the causal effect of specific interventions or exposures on mental health outcomes presents significant methodological challenges. Econometric methods, particularly those employing instrumental variables (IV), offer tools to address these challenges by exploiting exogenous variation. While there is a nascent body of econometric literature applying causal inference techniques to study the impact of various factors on broader mental health outcomes, studies specifically focused on estimating the causal effect of digital technologies or internet access on mental health are still emerging. For instance, Colombo, Failache, and Querejeta (2025) examined the effect of high-speed internet (fiber optic) on socioemotional well-being in Uruguay, using the probability of internet service accessibility and finding mixed effects on loneliness and worry. Arenas-Arroyo, Fernandez-Kranz, and Nollenberger (2022) investigated the causal impact of high-speed internet on adolescent mental and behavioral health in Spain using hospital records, instrumenting fiber penetration with installed infrastructure and finding a significant negative impact for girls. Donati, Durante, Sobbrio, and Zejcirovic (2022) analyzed the causal impact of broadband internet on professionally diagnosed mental health disorders in Italian hospitals during an early expansion period, using distance to the nearest telephone network node as an instrument and finding negative effects on various diagnoses, including EDs, primarily for young men and women. Kyung, Lim, and Lee (2021) empirically analyzed the relationship between broadband adoption and suicide in the United States using county-level data, employing the number of telecommunication operators as an instrument and finding a positive association.

These studies represent important contributions to understanding the causal effects of digital connectivity on various mental health outcomes using rigorous econometric methods. However, it is critical to note a significant gap in this literature: to the best of our knowledge, there are no existing econometric studies that employ causal inference methods to estimate the effect on eating disorder outcomes as the primary focus. Research on EDs using causal

methods is non-existent in this domain. Furthermore and more importantly, while most of the cited studies utilize internet penetration at a locality level, this study employs a household-level treatment variable (broadband internet service availability at home). This approach, using a more granular measure of treatment penetration at the household level, provides a potentially more reliable estimate of the direct impact of having internet access in the home environment on ED risk.

# 3    Background internet deployment in Mexico

Understanding the landscape of internet access and its evolution in Mexico is crucial for the empirical strategy employed in this study. In 2012, Mexico faced significant challenges in digital connectivity, since only 26% of households had internet access (INEGI, 2021), with connectivity being both expensive and unevenly distributed across the country. A pivotal moment occurred in 2013 with the Constitutional Reform in Telecommunications and Broadcasting, followed by the approval of the Federal Law on Telecommunications and Broadcasting in 2014. These reforms were part of a broader package of ambitious changes aimed at opening the sector to greater competition and enshrining internet access as a constitutional right (OECD, 2018). The legislation aimed to curb the power of dominant players, notably América Móvil, by imposing obligations such as infrastructure sharing and setting zero interconnection rates for dominant agents (Reuters, 2014). President Enrique Pena Nieto stated that these rules were designed to ``promote greater competition, more and better conditions, better coverage and service quality, as well as lower prices and costs'' (Reuters, 2014).

These policy changes, coupled with natural technological advancements, spurred a significant expansion in internet penetration and use in Mexico between 2012 and 2018, the period exploited in this study. The National Survey on Availability and Use of Information Technologies in Households (ENDUTIH) provides key evidence of this growth. By 2015, the ENDUTIH reported that 57% of the mexican population used internet. This upward trend continued, with the ENDUTIH 2018 indicating that 65.8% of the population aged six and over were internet users, totaling 74.3 million individuals. This period thus represents a significant expansion in internet adoption and availability across the country.

The reforms and subsequent market dynamics had a tangible impact on the cost and availability of services. The OECD documented that between 2013 and 2016, mobile

broadband prices in Mexico fell significantly, by up to 75% depending on the service basket (OECD, 2018). The number of internet subscriptions also saw a substantial increase, with mobile broadband subscriptions alone rising from 24 million in 2012 to over 74 million in 2016 (OECD, 2018).

This significant expansion of broadband internet infrastructure during the 2012-2018 period provides the empirical foundation for this study's approach. Specifically, we exploit the exogenous variation in municipal-level broadband infrastructure deployment as an instrumental variable for household-level broadband internet service availability (this assumption will be detailed in the identification strategy section). The policy-driven push for deregulation and infrastructure expansion led to differential rates of broadband availability across municipalities. While the precise location and timing of infrastructure deployment were influenced by municipal factors, our instrumental variable strategy relies on the exogenous component of this municipal-level supply-side variation and on the municipal-level control that is addressed. Figure 1 illustrates the substantial increase in active broadband services across municipalities in Mexico between 2012 and 2018, visually demonstrating the widespread nature of this infrastructure expansion throughout the entire country, and not just in specific regions, during the study period. By using this variation as an instrument, we can address the potential endogeneity of household internet adoption and isolate the causal effect of having broadband internet access at home on the risk of eating disorders among youth aged 11-19 in Mexico.
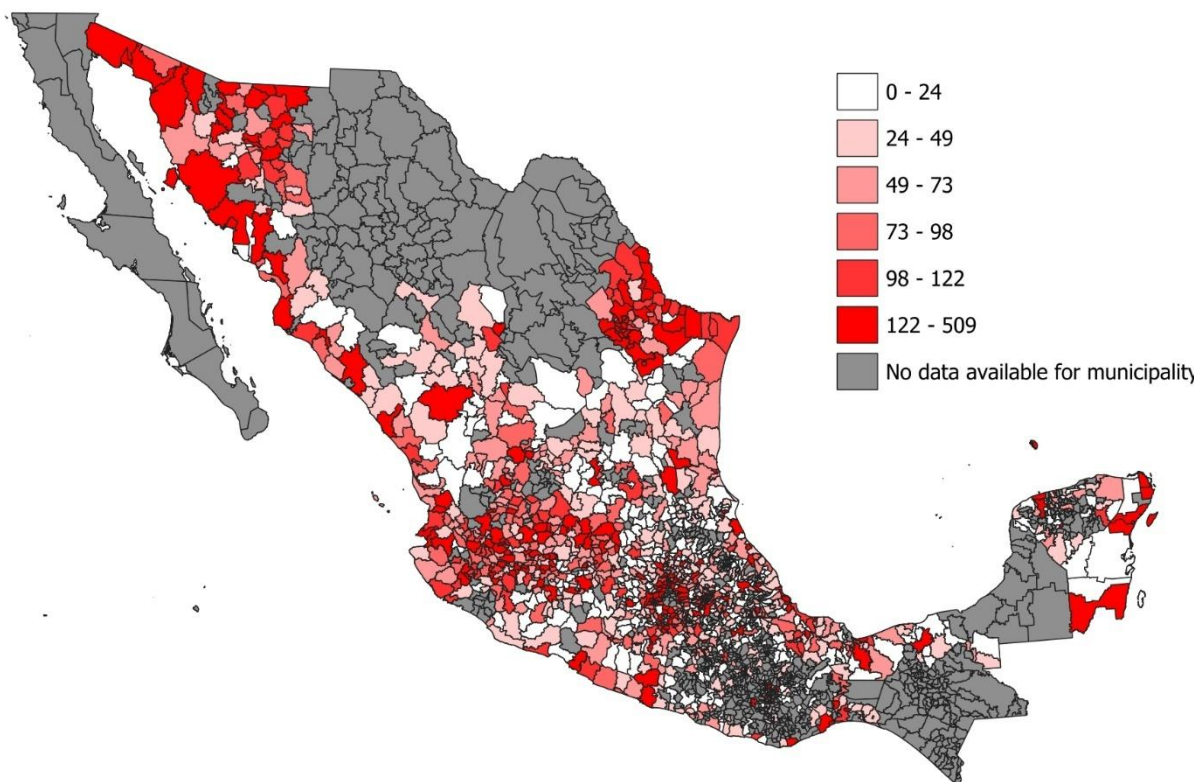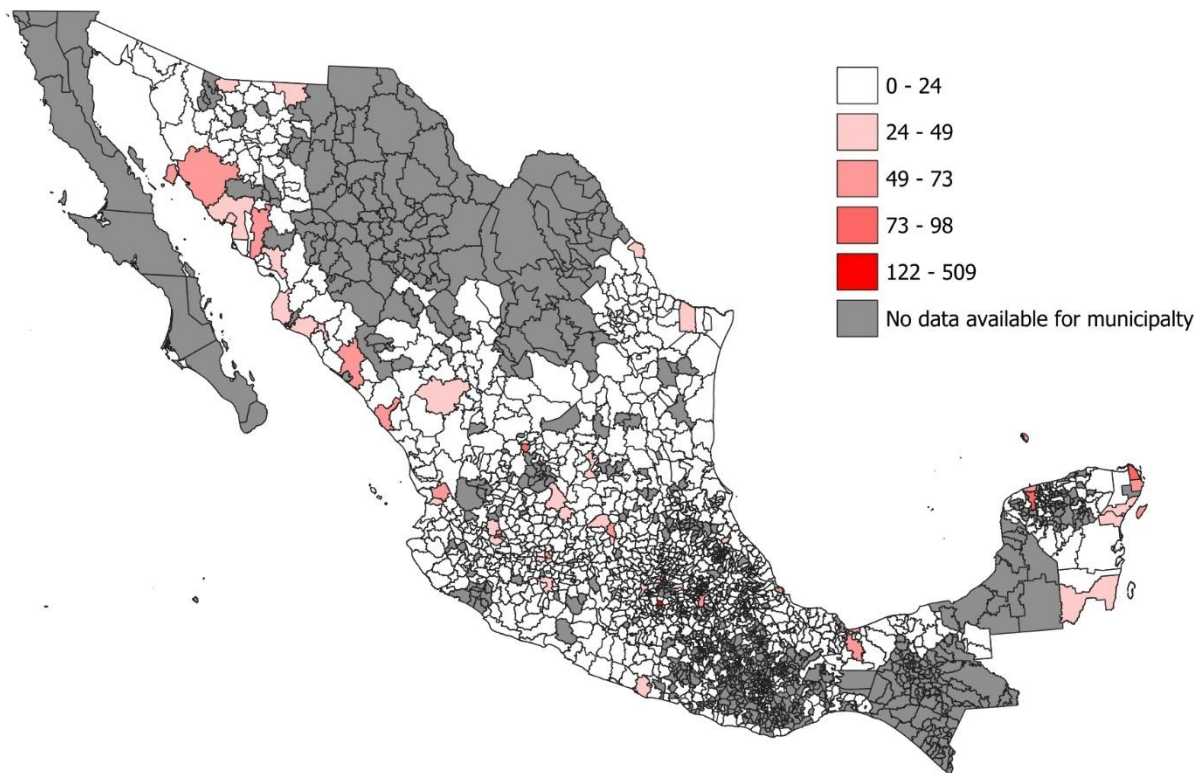
Figure 1: Active broadband services in Mexican municipalities per 1000 inhabitants, 2012 and 2018, respectively. Own elaboration with Institute of Federal Telecommunications (IFT) data.

# 4    Data

This study utilizes data from three primary sources to construct the variables necessary for the econometric analysis: the National Health and Nutrition Survey (ENSANUT), a database from the Federal Telecommunications Institute (IFT), and population data from the National Population Council (CONAPO).

The National Health and Nutrition Survey (ENSANUT) serves as the main source for the outcome variables and household-level socioeconomic covariates. Specifically, we utilize the 2012 and 2018 waves of the survey, aligning with the period of significant broadband expansion in Mexico. ENSANUT includes a dedicated component for youth aged 11-19 years, from which our sample is drawn. The outcome variables, reflecting the risk of eating disorders, are derived from a set of questions within the youth survey. These questions are based on a questionnaire developed by Unikel et al. (2004) and are designed to detect eating disorder risk behaviors. The specific questions assess the frequency, over the past three months, of behaviors such as worrying about gaining weight, eating too much or binging, losing control overeating, vomiting to lose weight, fasting to lose weight, dieting to lose weight, exercising to lose weight, and using pills, diuretics, or laxatives to lose weight. These individual questions serve as specific outcome variables in our analysis. Responses were originally collected on a frequency scale including "Never or almost never," "Sometimes," "With frequency two times a week," and "With great frequency more than two times a week." These outcomes where converted to binary taking value 1 whenever "Sometimes" or a more frequent response was captured and 0 otherwise. For the purpose of this study, we also created a generalized binary outcome variable from these responses. A value of 1 is assigned if the respondent reported "Sometimes" or any more frequent response ("With frequency..." or "With great frequency...") for any of the risk behaviors across the set of questions, and 0 if the response was "Never or almost never" for every question. This generalized binary variable captures the presence of at least one eating disorder risk behavior at a frequency of "Sometimes" or more often. This binary classification is based on the rationale that even reporting a behavior "Sometimes" is indicative of potential eating disorder risk. The ENSANUT also provides rich data on household socioeconomic characteristics, which are included as covariates in the model to control for factors that may influence both household internet adoption decisions and the risk of eating disorders.

The Federal Telecommunications Institute (IFT) provides the data used to construct the instrumental variable. This database contains a time series of the number of active broadband services reported by all firms at the municipal level, with a biweekly frequency spanning from 2013 to 2025. This data serves as a proxy for the supply and infrastructure development of broadband services across municipalities in Mexico. To align with the 2012 and 2018 waves of the ENSANUT, we use the number of active broadband services from the first biweek of 2013 to represent the broadband supply environment in 2012, and the number of active broadband services from the last biweek of 2018 to represent the environment in 2018.

Finally, data from the National Population Council (CONAPO) is incorporated into the analysis. CONAPO provides estimates of the population size at the municipal level for the years of interest (2012 and 2018). This population data is used to account for differences between municipalities.

# 5    Identification Strategy

To estimate the causal effect of having broadband internet access in the household on the risk of eating disorders (EDs) among youth, a simple Ordinary Least Squares (OLS) regression is likely to yield biased estimates due to potential endogeneity. A basic pooled OLS model could be represented as:

$$y_{ijt} = \beta Internet_{ijt} + \theta X_{ijt} + \alpha_j + \lambda_t + \varepsilon_{ijt} \tag{1}$$

Where $y_{ijt}$ is the outcome variable related to ED risk for individual $i$ in municipality $j$ at time $t$ (2012 or 2018), $Internet_{ijt}$ is a binary indicator for whether $i's$ household has internet access, $\beta$ is the coefficient of interest representing the effect of internet access, $X_{ijt}$ is a vector of household-level socioeconomic status (SES) controls, $\alpha_j$ represents municipality fixed effects and $\lambda_t$ represents time fixed effects. The primary concern with this OLS specification is that household-level internet adoption ($Internet_{ijt}$) may be correlated with unobserved factors that also influence ED risk, even after controlling for observed SES characteristics and fixed effects. For instance, unobserved parental attitudes towards technology, health, or body image could simultaneously affect a household's decision to subscribe to internet services and influence a youth's risk of developing ED behaviors. This

potential correlation between $Internet_{ijt}$ and the error term would lead to biased estimates of $\beta$.

To address this endogeneity and identify the causal effect of household internet access on ED risk, we employ an instrumental variable (IV) approach using a two-stage least squares (2SLS) estimation strategy. The core idea is to find an instrument that influences household internet adoption but is otherwise uncorrelated with the outcome variable (ED risk) except through its effect on internet access.

Our instrumental variable is the municipal-level broadband internet supply, measured by the number of active broadband services per 1000 inhabitants in municipality $j$ at time $t$ ($BroadbandS_{jt}$). The identification strategy exploits the variation in this supply-side factor, which is determined largely by infrastructure deployment decisions, to predict household-level internet access. The idea behind this relationship is that increased municipal broadband infrastructure makes adopting internet at home more feasible and accessible for households within that municipality. The first stage of the 2SLS model estimates the relationship between the instrumental variable and the potentially endogenous household internet access, while including all control variables:

$$Internet_{ijt} = \delta Broadband_{jt} + \theta X_{ijt} + \gamma Z_{jt} + \phi W_{ijt} + \alpha_j + v_{ijt} \qquad (2)$$

In this first stage, $Internet_{ijt}$ is the household-level internet access, $BroadbandS_{jt}$ is the municipal-level broadband supply instrument, $X_{ijt}$ is the vector of household-level SES controls, $Z_{jt}$ is a vector of municipal-level time varying characteristics (population and sanitary infrastructure) that influence broadband supply, $W_{ijt}$ is a vector of individual-level controls (sex, age, scholarity) and $\alpha_j$ are municipality fixed effects. The relevance condition for the instrument requires that $BroadbandS_{jt}$ significantly predicts $Internet_{ijt}$ after controlling for other factors. Our first-stage estimation yields an F-statistic well above 900 (see Table 1 in Appendix), providing strong evidence that the municipal broadband supply is a powerful predictor of household internet access in our data.

The second stage of the 2SLS model then estimates the effect of the predicted household internet access (from the first stage) on ED risk, including all control variables:

$$y_{ijt} = \beta Internet_{jt} + \theta X_{ijt} + \gamma Z_{jt} + \phi W_{ijt} + \alpha_j + \varepsilon_{ijt} \qquad (3)$$

Here, $y_{ijt}$ is the ED risk outcome, $Internet_{ijt}$ is the predicted value of household internet access from the first stage, $\beta$ is the causal effect of interest, and $X_{ijt}$, $Z_{jt}$, $W_{ijt}$, and $\alpha_j$ are the

same control vectors and fixed effects included in the first stage. The exogeneity (exclusion restriction) assumption for the instrumental variable is that municipal-level broadband supply ($BroadbandS_{jt}$) is not directly related to individual-level ED risk except through its effect on household internet access ($Internet_{ijt}$). Also, while acknowledging that factors influencing firms' deployment decisions might not be purely random across municipalities, we argue that the municipal-level broadband infrastructure development, particularly within the context of a national reform and expansion period as observed between 2012 and 2018 (as visually supported by the widespread increase in broadband services across Mexico shown in Figure 1), provides a plausibly exogenous source of variation in internet availability at the municipal level. We further strengthen this assumption by including municipality fixed effects ($\alpha_j$) to control for time-invariant municipal characteristics and municipal-level time varying controls ($Z_{jt}$) that may influence supply decisions, thus exploiting the intra-municipal variation that happened in the period of time studied. The inclusion of household-level SES controls ($X_{ijt}$) in both stages helps to account for observed factors driving household internet adoption. The inclusion of individual-level controls ($W_{ijt}$), such as sex, age, and scholarity, which are known to influence ED risk but are assumed to be uncorrelated with the household internet adoption (our treatment variable) after controlling for the instrumental variable and other covariates, helps to reduce the error variance and improve the precision of the estimated causal effect of interest.

While time fixed effects ($\lambda_t$) are commonly included in panel data models to capture aggregate shocks common to all units in a given period, they are omitted in this specification. In the context of our two-period data (2012 and 2018), the within-municipality variation exploited for identification comes from the change in household internet access and municipal broadband supply between these two years. This change is highly collinear with a time dummy for 2018 because virtually all municipalities experienced an increase in internet and broadband connections during this period; there is no significant variation in municipalities experiencing decreases or remaining stagnant. Including a time fixed effect for 2018 in addition to municipality fixed effects would therefore lead to collinearity, preventing a correct estimation of the model. Thus, the identification relies on the differential rates of broadband infrastructure development and subsequent household adoption within municipalities over this period.

Therefore, the coefficient $\beta$ in equation (3) provides an estimate of the causal effect of having broadband internet access at home on the risk of eating disorder behaviors among youth aged 11-19 in Mexico during the 2012-2018 period, identified through the exogenous variation in municipal-level broadband infrastructure deployment and controlling for relevant household, municipal, and individual characteristics.

# 6    Results

This section presents the estimated causal effects of broadband internet access at home on the eating disorder behaviors among youth aged 11-19 in Mexico, as identified by the 2SLS strategy detailed in the previous section. The coefficients reported for the outcome variables represent the estimated change in the probability (in percentage points) of exhibiting the specific eating disorder risk behavior or the generalized eating disorder behavior.

The estimated effects for the full sample of youth aged 11-19 years are presented in Figure 2. Considering that the baseline mean probability of exhibiting the generalized ED behavior for the entire sample is approximately 0.65, the estimated positive effect of 9 percentage points associated with household internet access represents a relative increase in ED risk of approximately 13%. This effect is even more pronounced when examining the results for adolescent girls. With a baseline mean probability of approximately 0.66 for the generalized ED behavior among adolescent girls, the estimated positive effect of 0.17 percentage points for adolescent girls indicates a substantial relative increase in ED risk of 26%.
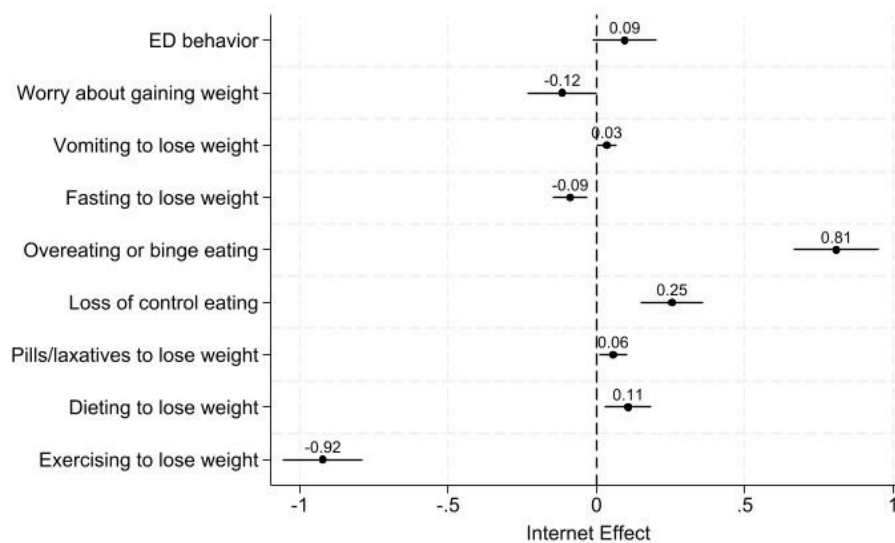


Figure 2: Effects of Internet on ED behaviors. Estimations in percentage points.

Examining specific eating disorder risk behaviors for the full sample, the estimated effects vary. We find a positive and significant association with several behaviors: a 3 p.p. increase in vomiting to lose weight, a substantial 81 p.p. increase in eating too much/binging, a 25 p.p. increase in losing control over eating, a 6 p.p. increase in using pills or laxatives to lose weight, and an 11 p.p. increase in dieting to lose weight. Conversely, household internet access is associated with a decrease in the probability of other behaviors: a decrease of 12 p.p. in worrying about gaining weight, a decrease of 9 p.p. in fasting to lose weight, and a decrease of 92 p.p. in exercising to lose weight. These results collectively suggest that, on average, having broadband internet access at home is associated with a statistically significant change in the probability of engaging in various eating disorder risk behaviors among Mexican youth, with notable positive associations for behaviors related to overeating and loss of control, and negative associations with worry about weight gain, fasting, and exercising for weight loss.

To explore potential differences in the impact of household internet access, we examine the heterogeneous effects on the generalized ED behavior variable across key demographic subgroups (see Table 2 to 5 in Appendix): sex and scholarity level relative to the median (which is the 2nd year of middle school for this age group studied). The results reveal important distinctions based on sex. For adolescent girls, the estimated effect of household internet access on the probability of exhibiting generalized ED behavior is a significant increase of 17 p.p.. In stark contrast, for boys, the estimated effect is not statistically significant. This finding strongly underscores that the positive association between household internet access and the risk of eating disorder behaviors appears to be driven primarily by the impact on girls. This result aligns with existing literature indicating that adolescent girls are generally more susceptible to higher levels of body dissatisfaction (Grogan, 2021). Heterogeneity is also observed by scholarity level. For youth with a last completed school year below the median, the estimated effect on generalized ED behavior is a significant increase of 19 p.p.. For those with a last completed school year at or above the median, the estimated effect is not statistically significant. This suggests that youth with lower levels of educational attainment may be more vulnerable to the factors associated with household internet access that contribute to ED risk.

# 7 Conclusion and discussion

This study offers novel causal evidence on the impact of household broadband internet access on eating disorder behaviors among youth in Mexico. Our findings underscore the critical need to prioritize eating disorders (EDs) within the public health agenda, recognizing them as mental health confrontations deeply tied to the daily activity of eating, which severely impacts quality of life.

The analysis using an 2SLS approach reveals a positive and statistically significant effect of home internet access on the probability of exhibiting ED risk behaviors in Mexican youth aged 11-19. While the average effect across the total sample indicates a relative increase in generalized ED risk of approximately 13%, the results highlight crucial heterogeneities. Specifically, adolescent girls experience a substantially larger impact, with a relative increase in generalized ED risk of approximately 26%. Furthermore, youth with lower educational attainment also appear more vulnerable, showing a significant increase in generalized ED risk compared to their more educated peers.

These heterogeneities are particularly concerning from a health equity perspective. Adolescent girls are already a group with higher susceptibility to EDs. Our findings suggest that increased access to the digital environment may exacerbate this pre-existing vulnerability. Similarly, a greater impact on youth with lower scholarity indicates how digital access could inadvertently widen existing disparities in mental health, putting already disadvantaged groups at higher risk. This highlights how the digital revolution, without targeted interventions, can contribute to the perpetuation of social inequalities in health.

In conclusion, this research provides convincing evidence of a causal link between household broadband internet access and an increased risk of eating disorder behaviors in Mexican youth, with a disproportionate impact on adolescents and those with lower educational attainment. These findings contribute to the limited causal literature on mental health outcomes and highlight the urgency for public health strategies to recognize the digital environment as an influential factor in youth mental well-being. Addressing EDs requires a broad public health approach that considers the risks of digital access and develops prevention programs targeting vulnerable populations, thus promoting a more equitable landscape for youth mental health in Mexico.

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# 9 Appendix

Table 1: First Stage 2SLS

|  | (1) Household internet |
| --- | --- |
| Broadband supply | 0.00131*** |
|  | (0.0000650) |
| Population | 0.000000291* |
|  | (0.000000141) |
| Sanitary infrastructure | 0.0187 |
|  | (0.0295) |
| SES | 0.119*** |
|  | (0.00182) |
| Woman | 0.00382 |
|  | (0.00619) |
| Age | 0.00377** |
|  | (0.00115) |
| Scholarship | -0.00145 |
|  | (0.000794) |
| Observations | 36656 |
| F-statistic | 932.07 |

This table reports coefficients from the first stage of the 2SLS. The binary household internet availability is regressed over active broadband services per 1000 inhabitants in municipality, municipality time-varying controls, SES controls, and individual characteristics. Sample restricted to youth in middle school or above. Robust standard errors are in parentheses. Significance levels: * <0.10$, ** <0.05$, *** <0.01.

### Table 2: Internet effect on ED behavior – Women

|  | (1)<br>No controls, no FE | (2)<br>Controls, FE state &<br>year | (3)<br>Controls, FE<br>municipality |
|---|---|---|---|
| Internet | 0.212*** | 0.00914 | 0.177** |
|  | (0.0481) | (0.0951) | (0.0837) |
| $N$ | 18330 | 18330 | 18312 |

This table reports coefficients from the second stage of the 2SLS. Column (3), which includes municipality fixed effects, is the preferred specification. The binary outcome is regressed on household internet availability, municipality time-varying controls, SES controls, and individual characteristics. Sample restricted to adolescent girls. Robust standard errors are in parentheses. Significance levels: * <0.10$, ** <0.05$, *** <0.01.

### Table 3: Internet effect on ED behavior – Men

|  | (1)<br>No controls, no FE | (2)<br>Controls, FE state &<br>year | (3)<br>Controls, FE<br>municipality |
|---|---|---|---|
| Internet | 0.0392 | -0.0644 | -0.00848 |
|  | (0.0484) | (0.103) | (0.0729) |
| $N$ | 18331 | 18331 | 18313 |

This table reports coefficients from the second stage of the 2SLS. Column (3), which includes municipality fixed effects, is the preferred specification. The binary outcome is regressed on household internet availability, municipality time-varying controls, SES controls, and individual characteristics. Sample restricted to adolescent boys. Robust standard errors are in parentheses. Significance levels: * <0.10$, ** <0.05$, *** <0.01.

## Table 4: Internet effect on ED behavior – Middle school or above completed

|  | (1)<br>No controls, no FE | (2)<br>Controls, FE state &<br>year | (3)<br>Controls, FE<br>municipality |
|---|---|---|---|
| Internet | 0.109** | 0.0148 | 0.0562 |
|  | (0.0434) | (0.0913) | (0.0726) |
| $N$ | 23738 | 23738 | 23727 |

This table reports coefficients from the second stage of the 2SLS. Column (3), which includes municipality fixed effects, is the preferred specification. The binary outcome is regressed on household internet availability, municipality time-varying controls, SES controls, and individual characteristics (includes age). Sample restricted to youth with completed middle school or above. Robust standard errors are in parentheses. Significance levels: * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

## Table 5: Internet effect on ED behavior – Below middle school completed

|  | (1)<br>No controls, no FE | (2)<br>Controls, FE state &<br>year | (3)<br>Controls, FE<br>municipality |
|---|---|---|---|
| Internet | 0.158*** | -0.0627 | 0.191** |
|  | (0.0550) | (0.115) | (0.0857) |
| $N$ | 13721 | 13721 | 13676 |

This table reports coefficients from the second stage of the 2SLS. Column (3), which includes municipality fixed effects, is the preferred specification. The binary outcome is regressed on household internet availability, municipality time-varying controls, SES controls, and individual characteristics (includes age). Sample restricted to youth with below middle school completed. Robust standard errors are in parentheses. Significance levels: * $p<0.10$, ** $p<0.05$, *** $p<0.01$.