

The Prevalence of Adverse Childhood Experiences in Payatas, an Urban Poor Community in the Philippines

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ABSTRACT. This paper aimed to determine the prevalence of Adverse Childhood Experiences (ACEs) in Payatas, an urban poor community in Quezon City, Philippines. In total, 260 people were surveyed in two areas of Payatas. The results of these surveys were then compared with existing ACE Surveys in other communities. Results found that ACEs were reported at significantly higher levels than in existing surveys, which were typically made of Middle-Class populations. The discrepancy grew at higher ACE Scores. Moderate childhood trauma, ACE Scores of 4 or more, was reported as two to five times more common in our Payatas populations than in the existing survey populations. Severe childhood trauma Scores are less available; however, these trends appear to grow at higher ACE Scores. These results suggest that ACEs are far more common in urban poor communities. That ACE Scores are higher in poorer communities is not a surprising finding. However, the scale of the problem is highly significant. As ACEs are a major root cause of many social problems, including, but not limited

to, addiction, teen pregnancy, domestic violence, depression, attempted suicide, and drug abuse, it does indicate a strong area for effective support. The potential for improving the well-being, quality of life, and life expectancy through this framework is large, provided appropriate investment is made in these communities.

1.0. Introduction

Studies about Adverse Childhood Experiences (ACEs) have grown substantially since Dr. Felitti's original study laid the framework for ACEs (Felitti et al., 1998). The ACEs survey consists of ten questions related to specific types of abuse, neglect, and family dysfunction. For every type of abuse, neglect, or dysfunction the respondent has experienced, they add a point to give a Score out of ten.

In the original study of over 17,000 respondents, just over half reported at least one ACE. As ACE Scores increased, associated risks increased exponentially. The lifetime risk of heart disease, cancer, diabetes, and other major health problems was two to four times greater for those who reported four or more ACEs than those who reported no ACEs, for example (Felitti et al., 1998). Those reporting four or more ACEs were also four times more likely to be depressed and sixteen times more likely to attempt suicide (Felitti et al., 1998.; Dube et al., 2001). The impact of this abuse, neglect, and dysfunction was so great that the life expectancy of those reporting severe childhood trauma, an ACE Score of 6 or more, was almost 20 years lower than those who reported no ACEs (Felitti et al., 1998; Brown et al., 2009).

Importantly, this framework points to childhood trauma as a *causal* factor in later adulthood physical and mental health problems. This is because of the especially strong dose-response relationship the researchers found (Felitti et al., 1998; Felitti, 2002; Anda et al., 2002) and the particular damage these experiences do to a child's more sensitive, developing brain (National Scientific Council on the Developing Child 2005/2014; Teicher, 2003; De Bellis & Thomas, 2003).

One of the strongest relationships was for attempted suicide, indicating the profound and pervasive impact this has on physical and mental well-being, and, therefore, behavior: "At higher ACE Scores [7 or more], the prevalence of attempted suicide increases 30-51 fold (3,000-5,100%)... overall, we found that between two thirds and 80% of all attempted suicides could be attributable to adverse childhood experiences" (Felitti, 2002, p.6).

Gender also increased the risk-factor of ACEs and was attributable to 1 in 3 teen pregnancies (Hillis et al., 2004), around half of depression, 67% of IV drug use, and 65% of alcoholism in women (Felitti et al., 1998; Felitti, 2002). Women with high ACE Scores were also seven times more likely to be raped later in life (Felitti, 2002; Beitchman et al., 1992). The numbers were lower but still highly significant for men. ACE Scores likewise predicted higher rates of vices for all genders, which led to Dr. Felitti describing the increased risk of self-destructive behaviors, such as drug abuse, as "the best coping device a person can find... a desperate attempt at self-healing" (Felitti, 2002, p.5).

Other research has already noted the childhood origins of self-destructive behavior (Van der Kolk et al., 1991; Bensley et al., 2000). Violence is often inter-generational (Fehringer & Hindin, 2009; Mandal, 2005) and strongly impacts parenting practices (Werner & Smith, 1992; Van Ijzendoorn et al., 1999; Pinderhughes et al., 2000; Lange et al., 2019). It is also established that particularly stressful and traumatic experiences cause neurological underdevelopment and epigenetic changes in an individual, affecting the brain's ability to respond to future stress (Meaney et al., 2010; Szyf, 2011). Indeed, knowing the type of trauma a person has experienced is key to understanding the risks that abuse and neglect have on the person later in life; the different types of trauma cause-specific neurological damage, physical underdevelopment, and behavioral problems (Teicher, 2003). This can also increase the likelihood of a cycle of violence repeating itself; Carlson (1990), for example, found boys who witnessed domestic violence in their families were seven times more likely to abuse their future partner.

In the Philippine context, existing literature has likewise established specific links and correlations to violence. A seminal study by Ramiro, Madrid, and Amarillo (2004) discussed domestic violence and found that mothers experienced more psychological maltreatment than physical maltreatment, but both were very common. Drinking and gambling were strongly correlated with violence, too. They, therefore, argued that interventions should be targeted towards men, emphasizing that men use coping mechanisms like drinking and gambling to deal with their everyday anxieties and problems:

Men, who indulge in these activities [drinking or gambling] as a means of coping with their everyday anxieties and problems, maybe considered weak and inept. To conceal their inadequacies, they use their power as the dominant gender to subjugate or take control of the thoughts and actions of their spouses." (Ramiro, Madrid, & Amarillo, 2004, p.114).

Sarmiento and Rudolf (2017) also found such violence to be extremely common, with four of five (4/5) young adults they studied reporting experiences of physical violence during childhood and a quarter of them suffering from severe physical violence. They noted that educational attainment was a risk factor, i.e., that boys from households with a lower educational achievement had higher risks of experiencing physical violence. They likewise found a strong link between child physical abuse (CPA) on the future of young adults' mental health. They concluded that child physical abuse has significant negative effects on young adults' family relations, social relations, and overall satisfaction with life.

Existing literature in the Philippines has also noted the cycle of violence and that witnessing inter-personal violence effectively 'normalizes' the behavior and so makes a child far more at risk of being abused again or becoming an abuser, or both (Ramiro, Madrid, & Amarillo, 2004; Fehringer & Hindin, 2009; Mandal & Hindin, 2013; Hindin & Gultiano, 2006). This tendency towards repeat victimization and reciprocation of violence was reduced when there was greater parental decision-making (Fehringer & Hindin, 2009).

While existing research around the world has noted many correlations and pointed to many causations, the ACEs framework helps quantify this and identify which areas are more likely to be causes or correlations. The ACEs framework helps us to weave these studies about violence together and provide a quantitative and predictive measure to this analysis. Therefore, the ACEs framework does not overthrow existing research but rather provides a more quantitative analysis of how much it affects a person's physical and mental health.

With a definitive number, it is possible to, somewhat crudely, quantify the amount of abuse, neglect, or family dysfunction a child has suffered. In turn, this provides a probabilistic understanding of the likely physical and mental health outcomes (Felitti et al., 1998; Felitti, 2002; Ramiro et al., 2010; Hughes et al., 2018; Brownridge et al., 2006; De Bellis & Thomas, 2003; Egeland & Erickson, 1987; English & Bradford, 2004; Nelson & Panksepp 1998; Teicher, 2000; Tomison & Tucci, 1997). Suppose a person has an ACE score of 4 or more, for example. In that case, their doctor or social worker immediately knows they have a particularly high risk of specific physical and mental health concerns, as well as a much greater risk of depression (Anda et al., 2002), suicide (Dube et al., 2001), and teen pregnancy (Dietz et al., 1999). Importantly, they can understand why the risk is far greater and work to treat the root cause rather than treating a symptom of the problem.

It should be noted that ACEs relate to the types of abuse, neglect, and family dysfunction, and it is much harder to measure the frequency or intensity of these experiences. While there are such drawbacks, the quantifiable nature of ACEs does make it possible to compare the ACE Scores between and within communities, and therefore create an understanding of which communities and which individuals are most at-risk.

Existing ACE surveys have also typically focused on Middle-Class populations. Felitti's original study on an American population was possible through the financial support of Kaiser Permanente, meaning only those with good healthcare insurance could be initially surveyed (Felitti et al., 1998). Indeed, 74% of the respondents had a college degree (Felitti et al., 1998). This is because only large insurance companies or national healthcare services can afford these quantitative research costs and are incentivized to mitigate healthcare costs. As a result, much of the existing ACEs research is located within healthcare journals. As poorer communities are far less likely to be customers of these healthcare services, they are far less likely to be included in existing surveys. However, the existing literature does indicate that they are also the most at-risk (Ramiro et al., 2010).

In the Philippines, the only available ACE survey found so far was Ramiro et al. (2010)'s study in Quezon City. This had a roughly equal number of lower, middle, and upper-income families responding. However, there are some qualifiers for this. Respondents must be literate enough to understand and reply to the survey in writing and families must own their homes, for example. Neither of these can be taken for granted in a community like Payatas, where literacy is particularly low, and no-one can legally own their homes, as the community is denied land titles.

In their results, Ramiro et al. (2010) still concluded "[t]hose who experienced four or more categories of [ACEs] were mostly males, aged 35–39 years, married, belonging to the lower socioeconomic class, high school level, and those with no paid work" (pp.845-6). Given methodological constraints, their priority was likely, and understandably, to get an overall view of ACEs' public reporting. This is a useful starting point, and the researchers hope this study, therefore, builds on existing literature by highlighting populations like Payatas, who make up the bulk of the population in Philippine cities and are most likely at the greatest risk.

Having anecdotally noted high rates of particular types of abuse, neglect, and family dysfunction in *beneficiaries* of the Fairplay For All Foundation, for whom the researchers work, the aim of this study is, therefore, to estimate the prevalence of ACEs in Payatas. As ACEs typically cluster in individuals (Felitti et al., 1998), i.e., experiencing one ACE made it more likely for someone to experience another, we hypothesized that the social factors that would make ACEs cluster in individuals would make ACEs cluster in particular communities.

2.0. Methods

The researchers used a cross-sectional design to see the prevalence of Adverse Childhood Experiences in a sample population of Payatas B, Quezon City. This sample population consisted of 260 total participants in two groups, the Fairplay *beneficiaries* and a *general population* in a nearby area.

The *beneficiaries* group consisted of 100 total respondents, of whom 70 (35 males, 35 females) are students between the ages of 10 and 21 years, and 30 are mothers aged 30 and above. Fairplay *beneficiaries* are supported financially for their education, as well as with tutorials for academic improvement, and social groups, such as the Youth Groups and Emotional Quotient (EQ) Club, for social support and personal development. The *beneficiaries* are selected to be Fairplay Scholars based on their household income and their participation in Fairplay activities, and so are a selected group expected to be a poorer sub-section of the community. They typically come from the same three or four areas, indeed the same streets, and are a group that can be compared with a general population within Payatas to understand the variance between two areas of the same barangay and compare future interventions to the general population as a control group.

The *general population* group consisted of 160 total participants from the *Molave* area of Payatas B, divided into 80 students aged between 10 and 21 years old and 80 mothers aged 19 and above.

For the *beneficiaries*, in-person interviews were conducted with a community worker to record each person's response. A community worker was required to be present or conduct the interviews

directly, partly because of the low literacy rate and partly because of the sensitivity of the topics and vulnerability of the group. Written permission of the parents was sought for all minors answering the surveys. Mothers were chosen for the survey for practical reasons, as one parent needed to be available for the survey. That was typically the mother. This also allowed a consistency for comparison between the populations.

The *general population* in Molave, Payatas B, where literacy appeared slightly higher, were given the surveys to fill out anonymously. The mother and child were asked to go to separate rooms, if feasible, or create considerable distance between them, answer the survey instrument by themselves, and approach the researcher to clarify questions about the survey instrument.

While the different methods of our survey create limitations in comparison, both in-person and self-administered surveys have been used in existing ACEs surveys (Felitti et al., 1998; Ramiro et al., 2010; Hughes et al., 2018). Existing ACE Surveys typically had a Doctor or other relevant authority present during the survey, and parents present whenever a minor took the survey. In this scenario, a community worker was the best equivalent. So, the researchers consider this similar enough in method to compare and contrast.

Descriptive statistics were then used to compute and arrange the data to see the extent of ACE Scores in the said population. These results were then compared with existing ACE surveys in Quezon City (Ramiro et al., 2010), the USA (Felitti et al., 1998), and Wales (Hughes et al., 2018). This comparison will provide insight into the prevalence of ACEs in urban poor communities and whether ACEs are clustered in more vulnerable areas.

Aside from the acknowledged limitations in the methods, there are several other considerations when reporting trauma. Notable research has shown how trauma affects memory (Janey, 1983; Van der Kolk, 1998), with 38% of victims hospitalized due to sexual abuse in one study later being unable to recall they had been sexually abused at all (Browne and Filkenhor, 1986). This dissociation has significant implications for understanding the impact and extent of abuse and neglect and suggests widespread underreporting. Hardt and Rutter (2004) likewise noted that many participants tend to underreport in their ACE surveys, given the sensitive nature of the questions. We likewise found some *beneficiaries* would downplay certain areas and underreport on some easily verifiable questions, such as whether a parent was in jail.

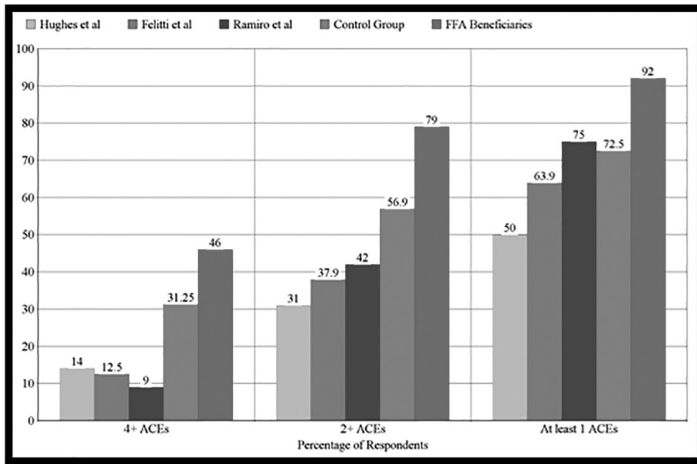
None of the above concerns invalidate ACEs as a framework for research. Instead, the reported figures should typically act as a minimum incidence of ACEs, with the understanding that the exact level of trauma may be significantly higher (Hardt and Rutter, 2004). Our methodologies were also chosen due to the limitations in reading and comprehension of many participants and the added vulnerability of *beneficiaries*, so these limitations are well noted.

An additional note for this study is that almost half of the total study population, 128 of the total 260 participants, were minors. Of the Fairplay *beneficiaries*, 61 of 70 students are below 18 years old, and 67 of 80 students in the *general population*. The adult students were in Senior High School or College. Overall, this whole sub-group of students is relatively young, with an average age of 14.38 years old (SD= 2.64). For reference, the remaining 110 participants were mothers, aged between 19 and 73 years old. The average age of the mothers in this group is 41.5 years old (SD=11.2). The ACE Scores of the students, therefore, are not 'final' and are likely to increase before their 18th birthday.

This further indicates that the ACE Scores reported are a minimum ACE Score. The average for the community and the specific subsets of each area are likely higher than indicated here. We will, therefore, follow the lead of other research in acknowledging these concerns and suggesting that ACE surveys typically offer a minimum Score rather than an exact representation.

3.0. Results

Overall, the combined 260 Payatas residents reported a significantly higher incidence of ACEs, compared with existing studies. The *beneficiaries* group reported a higher incidence of ACEs between the two Payatas populations. While 72.5% of the *general population* in Molave reported at least one ACE, 92% of the Fairplay *beneficiaries* reported at least one ACE. These results are higher than in other surveys conducted so far, where 63.9% of an American population (Felitti et al., 1998), 50% of a Welsh population (Hughes et al., 2018), and 75% of the population in Quezon City (Ramiro et al., 2010), the city Payatas is part of, reported at least one ACE.



Graph 1: Comparing ACEs numbers from different studies

The disparity between the incidence of ACEs in these populations grows much larger at higher ACE scores. Of the Payatas populations, 46% of the *beneficiaries* and 31.25% of the *general population* reported four or more ACEs. This is two to five times higher than the rates reported in other surveys, none of which had 15% of the population reporting four or more, as shown in Graph 1.

The Payatas population is, therefore, at significantly greater risk of experiencing ACEs, especially higher ACE Scores. Most studies stop comparisons at four or more ACEs due to the low figures; however, in this study, 25% of the *beneficiaries* and 16.8% of the *general population* reported six or more ACEs. At this level, Felitti et al. (1998) recorded a drop in life expectancy of 18.6 years compared to those with no ACEs (Brown et al., 2009).

The exceptionally high reporting of severe childhood trauma is especially worrying and we could therefore predict a similar reduction in the life expectancy of Payatas residents. The average life expectancy of a Filipino, according to the Philippine Statistics Authority (2015, p.53), is at 68 years old for males and 70 years old for females, and with the effects of poverty further compounding physical, mental, and social health, life expectancy for the Payatas population could therefore be estimated to be in the 50s.

4.0. Discussion

Payatas residents report a much higher incidence of ACEs. Only 9% of the respondents in Ramiro et al.’s (2010) study in Quezon City reported four or more ACEs. Meanwhile, in the Payatas communities, moderate childhood trauma, ACE Scores of 4 or more, was three and a half to five times more common in the *general population* and *beneficiaries* groups, respectively. Data for ACE Scores at six or more, severe childhood trauma, is less readily available. However, there is clearly a much higher incidence of severe childhood trauma in Payatas compared to existing studies, which is especially concerning given the cumulative effects take almost two decades off life expectancy.

If the study of Ramiro et al. (2010) is indicative of Quezon City as a whole, then communities like Payatas would account for the vast majority of the moderate and severe childhood trauma Scores. Urban-poor communities having a higher incidence of childhood trauma is not a surprising finding. The scale of the problem, however, is worrying.

Existing literature has shown that ACEs tend to cluster in individuals (Felitti et al., 1998) and that abusive behavior tends to breed further abusive behavior (Carlson, 1990; Fehringer & Hindin, 2009; Mandal, 2005). Our results add to this framework by showing the consequence of this cycle; ACEs cluster within specific areas of a city that are exposed to further pressures and vulnerabilities. This creates hotspots of Adverse Childhood Experiences, where a population is more at-risk, and ACEs cluster within those hotspots where severe childhood trauma is even more widely reported. Identifying these areas, those smaller communities most at-risk would clearly provide greater efficacy for social intervention.

These social problems are particularly high in impoverished communities (Furstenberg, 2008; Mojica et al., 2019) because of the compounding effects of the stress of poverty and lack of access to healthier coping mechanisms increases the likelihood of, in Dr. Felitti's words, "desperate attempt[s] at self-healing" (Felitti, 2002, p.5).

The economic, social, and political pressures that lead to family dysfunction, abuse, or neglect in one family is likely to be the same for their neighbors in communities like Payatas. In these areas, livelihoods are often dependent on one area or industry, such as the garbage industry in Payatas, where cramped houses are typically separated only by thin plywood boards.

These results likewise indicate an added burden of living in poverty, which is not often considered in poverty measurement and analysis. Past research has already shown that the mental burden of living in poverty, the stress of not having enough, was the equivalent of a reduction of 13 IQ points in the same individual (Mani et al., 2013). This *cognitive poverty tax* was similar to the mental burden placed on an individual if they had not slept at all the night before, or if they became a chronic alcoholic (Mani et al., 2013; Domingo and Marquez, 1999; Dube et al. 2006), which likewise results in more domestic violence (Ramiro, Madrid, & Amarillo, 2004).

Mani et al.'s (2013) findings looked at the mental burden after one year. However, the added psychological pressure due to ACEs, and the physical and mental health burden, compounds year on year. This can greatly overpower agency and potentially contribute to 'learned helplessness' (Maier & Seligman, 1976), among other long-term concerns. As these studies tested the same individuals, it is clear that the environment itself overwhelms the individual or the family. As such, the researchers wish to be clear to point out that the issue is structural. Anyone born into these circumstances sees their potential, and their opportunities diminish.

As it is established that ACEs are attributable for between one- and two-thirds of many societal issues, including drug abuse and addiction, teen pregnancy, depression, and attempted suicide, this connects the existing research to understand why ACE Scores and such societal issues are more prevalent in poorer communities. Therefore, this study adds to this framework by showing the large pressure of the environment on the child and the family, which are near-impossible to overcome without support. The child's living environment and early experiences make it increasingly likely such violence is also 'normalized', and they will facilitate or repeat the violence they experienced (Fehringer & Hindin, 2009; Mandal & Hindin, 2013). Most importantly, this framework identifies the causal factors for this violence cycle and the subsequent physical and mental health effects.

The economic loss of this cycle may be greatly overlooked also. Anda et al. (2002) calculate that the total healthcare costs caused by childhood trauma in the USA far outstrip cancer or heart disease costs. Traumatized children typically have far higher rates of physical and mental health disease, as noted earlier. For example, Trickett et al. (2011) found traumatized children had fifty times the rate of asthma, which the CDC estimated costs the USA more than \$80 billion annually (American Thoracic Society, 2018).

Investing in appropriate social care and support could, therefore, be incredibly cost-effective. Heckman et al. (2010) estimate that for every \$1 invested in early childhood care in the USA, there were future savings of between \$7 and \$12 due to reduced healthcare, incarceration, and welfare expenditures, as well as higher tax revenues. Further research would need to be done to put this in a Philippine context, as data is less readily available. However, the overall framework of the cost-benefit analysis is likely to be very similar.

A promising area of research in that respect is resiliency. Hughes et al. (2018) found that the current rate of mental health illness in those who reported four or more ACEs dropped from 37% to 13% when they had high adult resilience compared to those with low adult resilience (Hughes et al., 2018). In their study, resilience is the technical definition that mostly relates to people's social and emotional support. This requires a good deal of investment into the infrastructure and environment itself, which requires action from many sectors, including the government, to change these underlying conditions.

Poverty reduction still requires a financial element, of course. Hughes et al. (2018) noted that financial security greatly mitigated the impact of ACEs in adulthood. Those who reported an ACE Score of 4 or more, for example, saw their current rate of mental health illness fall from 35% to 11% when they felt financially secure for the next five years. Being 'lifted out of poverty' rarely means being financially secure for the next five years, however. It is often defined as being now slightly above a poverty line of PPP\$1 or \$2 a day. In this sense, the individual has not been 'lifted out of

poverty', as their childhood experiences contain a lifetime risk and impact physical and mental health. The financial difference of being slightly above the poverty line does not help them escape these lifetime risks.

The pervasive nature of ACEs confirms that poverty reduction should not be measured in monetary terms alone. Improving social and emotional support is also key to reducing the impact of poverty, ACEs, and their grave impacts. Considering two-thirds to 80% of attempted suicides are attributable to ACEs (Felitti, 2002), ACE Scores of 6 or more reduce life expectancy by almost two decades (Felitti et al., 1998). This is quite literally life or death for those who live through such experiences.

5.0. Conclusion

In conclusion, this study finds that the ACE Scores in Payatas are far higher than in other populations studied thus far. Moderate and severe childhood trauma is three and a half to five times more common in Payatas than reported in Quezon City generally. This demonstrates that there are hotspots of trauma within a city, areas where experiencing violence and family dysfunction is far more common. These areas should be especially targeted for social support.

Understanding this impact and mitigating the effect of ACEs on physical and mental health has so far been largely the domain of fields related to healthcare (Felitti et al., 1998; 2002; Hughes et al., 2018; De Bellis & Thomas, 2003; English & Bradford, 2004; Nelson & Panksepp 1998; Teicher, 2000; Tomison & Tucci, 1997, among others). However, this study suggests that understanding the root cause of many physical and mental health problems lies a great deal in understanding the heavy social pressures and experiences that families and communities are under. Thus, ACEs are well within the realm of social science.

As ACEs are attributable for between one-third and two-thirds of addiction, suicide, depression, teen pregnancy, and other physical, social, and mental health problems, the impact is huge. This study notes that the burden on families living in an urban poor community is likely even greater than understood thus far. The moral argument for support and compassion is evident. However, there is also a clear economic argument showing that mitigating ACEs' impact through appropriate healthcare, social policies, social welfare, and poverty alleviation measures is likely far cheaper and more effective than existing policy.

Further research would benefit from surveying more specific populations to identify the hotspots of ACEs and target the most appropriate communities with social support. This research would also benefit from better understanding the impact of underreporting or the variance between reporting under different methods to better identify these hotspots.

For a more precise estimate of the incidence of ACEs in communities like Payatas, we likewise encourage others to conduct larger surveys. In the meantime, public policy related to healthcare, education, development, addiction, mental health, and social well-being must all consider the impact and longevity of Adverse Childhood Experiences.

While the powerful and pervasive impact of ACEs may seem overwhelming, understanding a major root cause of these social concerns in the community can be empowering as it allows us to treat the underlying cause. This creates a much greater long-term impact than the often symptom-led and punitive approaches adopted in areas like Payatas, particularly in response to mental health and addiction. The bad news is that the problem is incredibly powerful and pervasive. The good news is that the solutions, when appropriately done, appear far more effective, compassionate, and cost-efficient in the long run.

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