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ARTICLE

ADVERSE CHILDHOOD EXPERIENCES IN A COHORT OF ADULTS EXPERIENCING HOMELESSNESS

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Introduction

Psychological trauma is "the unique individual experience of an event or enduring conditions, in which the individual's ability to integrate his/her emotional experience is overwhelmed or the individual experiences (subjectively) a threat to life, bodily integrity, or sanity" (Pearlman & Saakvitne, 1995, p. 60). The impact of trauma can be viewed through a biopsychosocial lens where exposure to adversity particularly during critical developmental periods lends itself to structural changes in the brain (Bremner, 2006) and increases an individual's risk for poor quality of life in domains such as health (Felletti et al., 1998), education (Bethell et al., 2014), housing and employment (Topitzes et al., 2016).

The Adverse Childhood Experiences (ACEs) study (Felletti et al., 1998) was the first study conducted on a national scale to demonstrate the wide-ranging impact of childhood trauma on healthy development and later life negative health related outcomes. This study has been replicated several times and results consistently indicate that exposure to toxic stress or trauma as a child is significantly correlated with deleterious adult health and social behaviours (Taylor et al., 2008). This ten-item ACE scale poses questions related to an individual's exposure (before the age of 18) to physical, emotional and sexual abuse, and other household dysfunction such as a parent with substance misuse issues or an incarcerated relative (Felletti et al., 1998). The original study revealed that more than half of the respondents had reported at least one ACE, therefore determining that exposure to early life trauma was relatively common. However, analysis revealed that respondents with a score of four or more were at an increased risk for negative health outcomes, and a dose response between the ACE score and risk for poor health experiences was noted (Felletti et al., 1998; Murphy et al., 2014). Where there is a score greater than four, the likelihood of chronic pulmonary lung disease increases 390%; hepatitis, 240%; depression 460%; and suicide 1,220%. A comparable study was conducted in Australia and similar results were found (Taylor et al., 2008). While the ACE scale has been accepted as a useful tool in epidemiological research (Anda et cl., 2020) it is limited in that early adversity measured is focused within the family home. It is important to consider the role of structural societal factors as a feature in early life adversity such as poverty, racism, discrimination and social exclusion. However, while the 10-item scale is limited, it does provide a wealth of existing published research to facilitate comparisons between populations.

In parallel to the recognition that exposure to maltreatment affected later health outcomes, the last decade has witnessed developments in brain imaging techniques that allow researchers to understand better than ever the impact of exposure to trauma on the developing brain (Riem at al., 2015). It is now recognised that the frontal and limbic structures of the brain are particularly vulnerable to the influence of child maltreatment (Hart & Rubia, 2012; Jedd et al., 2015). The first 1000 days of a child's life have been identified as a critical period for growth and development (Richter et al., 2017). It is during this time that major new neural pathways and connections are building, however exposure to abuse, neglect and/or household dysfunction during this time may cause brain cell death right at the time that new neural pathways should be establishing (Riem et al., 2015). This results in impairment in the ability to regulate and integrate emotions and consequently difficulties emerge, such as an inability to establish effective interpersonal relationships, regulate emotions, and learn from own and others' experiences (Schore, 2003). The ability to recognise the signs and symptoms of trauma is essential in correctly interpreting the behaviour of trauma survivors. For example, individuals who have experienced complex, on-going trauma are at risk of excessive cortisol arousal, causing cell death in the hippocampus (Benedetti et al., 2011). The associated consequences include difficulty reading facial and social cues, heightened startle responses, avoidance, memory problems, poor decision-making skills and aggression (Ashley & Swick, 2019). These responses must be understood as normal trauma responses, but importantly these factors that prevent individuals from appropriately engaging with mainstream services. Individuals who have been exposed to adversity may have impaired decision making, be at increased risk of self-harm and substance use, and present with challenging behaviour (Dermody et al., 2018). A client blameworthy perspective can exist (McHale & Fenton, 2010), however research in this area tells us that these behaviours are adaptive responses to a perceived threat that no longer exists (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). An understanding of the impact of trauma on the brain facilitates a recognition of challenging behaviours as "survival strategies" and thus enhances a services ability to engage with an individual in a more empathetic manner (Huckshorn & LeBel, 2013). Practitioners and clinicians are supported in restructuring views such as "reluctance to engage" to "struggling to engage" using trauma informed practice.

Homelessness is in essence traumatic. People experiencing homelessness have lost the protection of home and community, they are marginalized and isolated within society. People exposed to this experience are highly vulnerable to violence and victimization (SAMHSA, 2014). Taylor et al. (2008) explored the pervasiveness of trauma experiences within an unhoused community in Sydney, Australia, finding that 98% of participants had experienced at least one trauma and 93% had experienced two or more. The average number of traumas in the sample (N=53) was six, with the first trauma experience having occurred by the age of 12. Overall, 79% of the sample had a lifetime prevalence of post-traumatic stress. In 59% of cases, the onset of post-traumatic stress disorder (the clinical manifestation of trauma) preceded the age of the first reported homeless episode, leading the authors to state that homelessness can be seen both as a consequence and a predictor of trauma (Taylor et al., 2008). A similar study conducted in the Dublin Simon Community showed related findings, with 95% of the sample (N=45) having experienced one or more traumatic events, while 46% met the criteria for PTSD (Hallinan, 2015). Where the Sydney study showed a relationship between the level of trauma and addictive behaviour, with participants disclosing addiction issues with alcohol (63%), substances (88%) and gambling (66%), the Irish study showed a correlation between emotional regulation difficulties and sedative abuse (benzo, alcohol and opiates). The research seems unambiguous on the co-morbid nature of addiction and trauma, with a number of authors suggesting a functional relationship between both disorders, which is largely supported by empirical evidence (Van Dam et al., 2012; Wall et al., 2018;). Such empirical evidence points to a crossover in the dysregulation of hormonal systems found in those that suffer from both conditions.

The current unprecedented housing crisis in Ireland is pushing people into homelessness and preventing people from leaving homelessness (Hearne, 2020). Cork Simon Community is the second

largest homelessness service in Ireland. With increasing demands on resources, those who are often the most vulnerable struggle to navigate systems and services. The inverse care law posits that the availability of good medical or social care tends to vary inversely with the need of the population served (Hart, 1971). People experiencing homelessness have higher levels of physical and mental health conditions but find it difficult to receive the care they need. Thus, consideration of service design and delivery is required in order to maximise a service user's ability to engage with an increasingly fast paced and outputs driven funding environments. In this context, the aim of this study was to investigate the level of childhood adversity within a homelessness setting and the relationship between the levels of childhood adversity and current health status.

Method

This study employed a survey, with 50 unhoused individuals who presented at an emergency shelter in the south of Ireland over a period of 12 months, participating. A routine part of the screening procedure in the setting includes an initial assessment. Several questions are asked of everyone accessing this homelessness service and we examined a selection of sociodemographic and psychological variables identified in the literature as being particularly germane to our sample.

Psychological variables of interest included among others, time spent in prison, presence of substance use in family, time spent in residential care, children lost to care, first drug taken, if drugs were ever injected, age at which first drug was taken, past and present drug-of-choice, age at which cannabis, heroin and alcohol was first used, number of visits to the accidents and emergency ward, number of visits to the intensive care unit, history of sexually transmitted infections, history of sharing needles, history of unprotected risks, whether there is currently a charge against the person, history of assault, history of treatment for substance use/gambling, history of overdoses, history of self-harm, history of domestic violence, history of suicidal thoughts as well as adverse childhood experiences (ACE) questions summing to a total ACE score.

Ethics

Ethical approval for data collection was granted by the Director of Cork Simon Community and by the School of Applied Psychology, University College Cork Ethics Committee. Due to the vulnerability of the client group, adherence to ethical standards was of utmost importance and clients were selected based on their suitability to participate and were supported by keyworkers and an addiction counsellor. Participants were also asked to rate their experience of completing the ACE scale on a Likert scale ranging from 1-10, ranging from 'not at all distressing' (1) to very 'distressing' (10). The average self-reported level of distress completing the scale was 4.08 (SD = 2.67), with a range of 1-9. The most frequent response was 1 out of 10 and 82% of the sample rated their level of distress at 6 or under.

Data analysis

Initial analyses focused on descriptive statistics and frequency analysis. Due to randomly missing data, values do not always sum to 100%. The questions asked of respondents were mainly ordinal and dichotomous in nature, which resulted in rank ordered data analyses being used to analyse the data. Phi coefficients, Kendall's tau-b and c, Somers' D, and linear by linear Chi-square tests were conducted to ascertain possible group differences based on the likelihood of responses. Lastly, Mann-Whitney tests of group differences was conducted using the total ACE score as the dependent variable of interest. To assess any associations in the ACE scores across different sociodemographic and psychological variables, ACE scores were divided into four groups: 'no experience of trauma' (ACE score of 0); 'low level of trauma' (ACE score of 1-3); 'high level of trauma' (ACE score of 4-6) and 'very high level of trauma' (ACE score of 7-10). Low cell count in some of these groupings (e.g., only one unhoused male recorded a summed score of 0 on the ACE) resulted in the creation of two levels of trauma, namely, low trauma and high to very high trauma. Kendall's tau-c test statistic was used to assess directional symmetry across several variables. Due to low cell count across a number of crosstabulations, only robust analyses outcomes are reported.

Results

Table 1 reports the demographic profile of the 50 participants (80% male) who presented at a local emergency shelter, with over 83% identified as White Irish. Proportionally, there were more unhoused females under the age of 25 when compared to males; while males reported leaving school at an earlier age when compared to females and proportionally more females attained up to a leaving certificate when compared to males.

Table 1: *Sociodemographic overview of homeless individuals*

Variable		Male n (%)	Female n (%)
Age	<25	5(10)	3(6)
	26-35	26(52)	5(10)
	36+	9(18)	2(4)
School leaving age	10-14	13(26)	2(4)
	15-17	22(44)	5(10)
	18+	3(6)	3(6)
Highest education attained	National certificate/up to Junior certificate	31(66)	8(17)
	Up to leaving certificate	6(12.8)	2(4.3)
Number of children	No children	17(37)	2(4.3)
	One	10(21.7)	4(8.7)
	Two or more	9(19.6)	4(8.7)

Tables 2 through 5 below present additional sociodemographic information and the psychological profile overview of our sample, split by gender. Looking to Table 2, females reported proportionally higher rates of ever having been in care when compared to males, as well as reporting higher rates of having had their children removed and placed into care. When investigating the self-reported data from all participants and considering non-responses for items, males reported proportionally higher rates of presence of substance use in the family compared to females.

Table 2: *Developmental overview of unhoused individuals*

Variable		Male n (%)	Female n (%)
Presence of substance use in family	Yes	29(64.4)	5(11.1)
	No	8(17.8)	3(6.7)
Ever been in care	Yes	11(37.9)	4(13.8)
	No	13(44.8)	1(3.4)
Ever had children removed from parents to care	Yes	4(19)	4(19)
	No	11(52.4)	2(9.5)
Spent time in prison	Yes	9(50)	2(11.1)
	No	5(27.8)	2(11.1)

As reported in Table 3, males reported proportionally higher rates of consuming alcohol at early ages (<10) than females, as well as reporting ever having taken and currently taking drugs like heroin when compared to females. Sex proportions were similar regarding cannabis use. Males reported proportionality higher rates of intravenous heroin consumption and present consumption thereof when compared to females.

Table 3: *Substance use among unhoused individuals*

Variable		Male n (%)	Female n (%)
Age at first alcohol consumption	<10	7(14)	0(0)
	11-15	19(38)	4(8)
	16-17	5(10)	1(2)
First drug taken	Alcohol	14(28)	2(4)
	Cannabis	12(24)	1(2)
	Other	7(14)	1(2)
Present drug of choice	Cannabis	4(8)	1(2)
	Heroin	25(50)	1(2)
	Other	4(8)	2(4)
Age at which alcohol first taken	7-12	12(33.3)	4(11.1)
	13-17	19(52.8)	1(2.8)
Age at which cannabis first used	10-14	23(53.5)	6(14)
	15+	12(27.9)	2(4.7)
Age at which heroin first used	13-19	6(15.8)	4(10.5)
	20-25	12(31.6)	1(2.6)
	26+	14(36.8)	1(2.6)
Route of heroin transmission	Intravenous	12(28.6)	2(4.8)
	Smoking	7(16.7)	1(2.4)
	Intravenous and smoking	15(35.7)	5(11.9)
Past drug of choice	Alcohol	17(45.9)	3(8.1)
	Cannabis	7(18.9)	0(0)
	Heroin/Other	9(24.3)	1(2.7)
Present drug of choice	Cannabis	4(12.9)	1(3.2)
	Heroin	25(80.6)	1(3.2)

Table 4 reports some similar sex trends in proportions are identified across several variables, namely, ever having self-harmed, ever having been treated for substance use or gambling, ever having been in intensive care and numbers of visits to accidents and emergency wards. Females reported proportionally higher levels of a history of domestic violence and a history of suicidal thoughts. Sex trends regarding risky behaviour show a higher proportion of males reporting a current criminal charge as well as a history of assault. Females showed higher proportions of a history of sexually transmitted infection, taking unprotected risks, injecting substances and sharing needles.

Table 4: *Risky behaviour among unhoused individuals*

Variable		Male n (%)	Female n (%)
History of STI (sexually transmitted infection)	Yes	7(16.3)	2(4.7)
	No	28(65.1)	6(14)
Taken unprotected risks	Yes	15(38.5)	4(21.1)
	No	18(46.2)	2(5.1)
Ever injected substance	Yes	29(61.7)	9(191)
	No	8(17)	1(2.1)
Ever shared needles	Yes	13(31)	5(11.9)
	No	21(50)	3(7.1)
Currently have a criminal charge	Yes	16(35.6)	3(6.7)
	No	20(44.4)	6(13.3)
History of assault	Yes	18(38.3)	2(4.3)
	No	20(42.6)	7(14.9)

Moving to scores on the ACE, 74% of the sample self-reported high to very high ACE scores. There were three times as many males reporting high to very high ACE scores in comparison to males reporting low ACE scores. Regarding females, the proportion was 2.3. From our sample, it appears that males report higher levels of ACE scores when compared to females.

Table 5: *Other behaviour and ACE scores among unhoused individuals*

Variable		Male n (%)	Female n (%)
Number of visits ever to accident & emergency	1-5	7(15.9)	3(6.8)
	6-12	12(27.3)	2(4.5)
	13+	18(40.9)	2(4.5)
Ever been in intensive care	Yes	14(31.8)	2(4.5)
	No	23(52.3)	5(11.4)
Ever been treated for substance use or gambling	Yes	31(63.3)	10(20.4)
	No	8(16.3)	0(0)
Is there a history of domestic violence	Yes	20(44.4)	8(17.8)
	No	15(33.3)	2(4.4)
Is there a history of suicidal thoughts	Yes	26(56.5)	7(15.2)
	No	11(23.9)	2(4.3)
Ever self-harmed	Yes	17(34)	4(8)
	No	23(46)	6(12)
ACE scores grouped X 2	0-3(low trauma)	10(20)	3(6)
	4+ (high to very high)	30(60)	7(14)
ACE scores grouped X 4	0 (none)	1(2)	0(0)
	1-3 (low trauma)	9(18)	3(6)
	4-6 (high trauma)	18(36)	3(6)
	7-10 (very high trauma)	12(24)	4(8)

Statistical analysis identified a positive correlation between total ACE scores and the age at which unhoused individuals stared injected with heroin, (T_C =-.326, p<.05.) with those scoring higher ACEs also injecting at earlier ages. Several Mann-Whitney tests were conducted to determine any significant differences between unhoused individuals across several variables using their total ACE scores as the independent variable. Looking at substance use, there was a significant difference between unhoused individuals receiving treatment for substance use and/or gambling and those who had not received treatment across total ACE scores, with those with higher ACE scores evidencing higher frequencies of treatments, U=86.5, p<.005. Conversely, there was also a significant difference between unhoused individuals who had overdosed in comparison to those who had not overdosed across total ACE scores, with those with higher ACE scores evidencing higher frequencies of overdosing, U=170, p<.005.

There was a significant difference between unhoused individuals taking unprotected risks and those not taking unprotected risks across total ACE scores, with those with higher ACE scores evidencing more risk-associated behaviour, U=81, p<.005. There was also a significant difference between unhoused individuals who had self-harmed in comparison to those who had not self-harmed across total ACE scores, with those with higher ACE scores evidencing higher frequencies of self-harming, U=193.5, p<.05. Finally, there was a significant difference between unhoused individuals who were involved in domestic violence in comparison to those who had not been involved in domestic violence across total ACE scores with those with higher ACE scores evidencing higher frequencies of domestic violence, U=122.5, p<.01.

Discussion

People experiencing homelessness are at a higher risk of experiencing trauma (American Psychological Association, 2013; SAMHSA, 2013) via witnessing or direct victimisation, which are frequent among this population (LaGory et al., 2001). Rates of posttraumatic stress disorder (PTSD) are high in this population (Greenberg & Rosenheck, 2010; SAMHSA, 2013), however exposure to violence and victimisation for individuals experiencing homelessness often begins in childhood (North et al., 1994). Average rates of childhood physical abuse and sexual abuse among this population are reported at 37 % to 95 %, and 32 % to 95 % respectively (Christensen et al., 2005; Kim et al., 2010; MacLean et al., 1999; Sundin & Baguley, 2015) and these rates are disproportionately higher among people experiencing homelessness than among the general population (Cockersell, 2012; Maguire et al., 2009).

It is worth noting a disproportionate amount of care leavers were recorded within the sample, additionally the majority of participants were also early school leavers. Early intervention, prevention and staying in education are well established protective factors, however this study did not investigate the level of interventions provided to the participants in childhood. In the current study, the prevalence of adverse childhood experiences was high, with 98% of those surveyed experiencing some form of ACE during childhood. Participants reported significant adverse outcomes in a range of domains such as early school exclusion, imprisonment, suicide attempts, multiple hospitalisations and risky health behaviours. What was also interesting was that people with higher levels of adversity reported multiple treatment attempts. Self-discharge and/or failure to complete treatment is often viewed as a failure (Machin et al., 2018), perhaps instead it should be accepted that those with trauma histories need to make multiple attempts at treatment. If we viewed each attempt as a success on a continuum of recovery as opposed to a failure, service users may feel positively reinforced to try again until they succeed.

A limitation of the study is the use of the ACE scale, this scale places adversity within the family home and does not recognise structural adversities such as poverty, discrimination etc. Many unhoused individuals continue to experience traumatic events as adults, e.g., assaults etc., the current study did not record adult experiences of trauma.

People experiencing homelessness have reported very negative experiences of their attempts to access mental health services, they report feeling stigmatised, rejected and poorly understood (Adams & Lambert, 2018; Moynihan et al., 2021). People who have experienced trauma can present with very challenging behaviour, and it is incumbent on services to understand that these behaviours were likely once adaptive and are a result of adversity. Systems should shift their design and delivery to be trauma informed and inclusive to those who are most marginalised and who need the services most. More data are required from people experiencing homelessness across regional areas in Ireland, as this would provide a broader picture, increased efforts are required to recruit more female participants. The concept of trauma informed care (TIC) or psychologically informed environments (PIE) are growing in popularity among front line service providers (Bruce et al., 2018), the research on the efficacy of these models is limited. More research is required on these emerging models to measure improved outcomes in clients who present, in particular those clients who are considered to be hard to reach.

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