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Research Paper

Exploring The Influence of Adverse Childhood Experiences on Behavioural Addictions and the Mediating Role of Life Skills

Zuberia Suyeb[1]*, Mr. Ashish Varghese[2]

ABSTRACT

This study explores the influence of adverse childhood experiences on the development of behavioural addictions like food addiction, problem gambling and social media addiction in the Indian population. It also attempted to understand the mediating role of life skills between adverse childhood experiences and behavioural addictions. There were 153 participant responses collected through an online survey by convenience sampling. Data was collected by a valid and reliable questionnaire consisting of demographic information and a separate scale for each variable. The majority of participants in the study were females (73%). Furthermore, the results found a significant positive correlation between adverse childhood experiences and social media addiction ($r=0.171$, $p < .05$) and the mediation analysis model significantly predicted food addiction (Effect = 0.03, 95% C.I. (0.02, 0.09)) as well as social media addiction (Effect = 0.18, 95% C.I. (0.01, 0.45)). The findings indicate that adverse childhood experiences can lead to social media addiction later in life. The result of the mediation analysis shows the indirect effect of adverse childhood experiences via life skills on food addiction and social media addiction and addresses the partial mediating role of life skills between adverse childhood experiences and behavioural addictions.

Keywords: *Adverse Childhood Experiences, Behavioural Addictions, Life Skills, Food, Gambling, Social Media*

Adverse Childhood Experiences (ACEs) refer to a range of traumatic experiences, including abuse, neglect, and family dysfunction before the age of 18, which have significant and lasting effects on an individual's emotional, physical, and psychological health. The CDC-Kaiser Permanente ACE study (Felitti et al., 1998) first highlighted the connection between ACEs and long-term health risks, a link that has been confirmed through research across various countries (Merrick et al., 2017; Finkelhor et al., 2015). ACEs have been shown to increase the risk of mental health disorders, substance abuse, and chronic physical health conditions, with individuals exposed to multiple ACEs being at a significantly higher risk (Bellis et al., 2019). The cumulative nature of ACEs amplifies their effects, with studies showing that individuals who experience four or more ACEs are more likely to suffer from depression, PTSD, anxiety, and substance abuse (Trivedi et al., 2021). This "dose-response" relationship underscores the gravity of multiple

[1]Psychologist at WBVF
[2]Assistant Professor at The Maharaja Sayajirao University, Baroda.
*Corresponding Author

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negative experiences in childhood, which also raise the risk of physical health issues such as cardiovascular disease, cancer, and chronic pain (Felitti et al., 1998; Dube et al., 2009). The impact of ACEs extends beyond mental health, with those exposed to childhood trauma facing increased healthcare needs, more frequent hospital visits, and higher medication use (Brown et al., 2009; Anda et al., 2008).

ACEs can be classified into three broad categories: abuse (physical, emotional, sexual), neglect (physical and emotional), and household dysfunction (e.g., substance abuse, mental illness, parental separation) (Felitti et al., 1998). These experiences have been linked to a range of mental health issues, with physical abuse in particular contributing to depression, suicidal behaviour, and other psychological challenges (Maurya et al., 2023). Neglect and emotional abuse are associated with developmental and emotional disorders, including oppositional defiant disorder and depression (WHO, 1999). Moreover, children exposed to ACEs are at higher risk of engaging in criminal behaviour and may struggle with forming healthy relationships or coping with stress (Fox et al., 2015; Turner & Butler, 2003). Neurobiological research further supports the impact of ACEs on brain development, revealing that early trauma disrupts the brain's structure and function, contributing to emotional and behavioural difficulties in adulthood (Anda et al., 2010). Additionally, individuals with high ACE scores are more likely to engage in risky behaviours, such as smoking, substance abuse, and unhealthy eating, which contribute to chronic health conditions like obesity and cardiovascular disease (Williamson et al., 2002; Bellis et al., 2014). ACEs are also linked to an increased risk of other physical ailments, such as gastrointestinal diseases, chronic pain, and cancer (Dube et al., 2009; Anda et al., 2008).

In countries like India, where mental health resources are limited, the prevalence of ACEs and their consequences is a growing concern. Studies indicate that a significant proportion of Indian children and adolescents suffer from mental health issues related to ACEs (Dhawan et al., 2017; Rej & Sasi, 2023). With the country facing an increasing burden of mental illness and limited healthcare infrastructure, it is essential to focus on early detection and prevention of ACEs, particularly in a population where childhood adversity is common (Patel et al., 2016). Despite the growing recognition of the impact of ACEs, much of the research still focuses primarily on post-traumatic stress disorder (PTSD), overlooking other mental health outcomes. Many studies also examine ACEs in isolation, making it difficult to understand their cumulative effects on overall well-being (Font & McGuire-Jack, 2016). A comprehensive approach to ACEs is needed to address their full spectrum of consequences, ultimately improving health outcomes and preventing the intergenerational transmission of trauma.

Behavioural Addictions

Life’s basic survival behaviours, such as breathing, eating, and sex, bear resemblance to addiction in that they are driven by the body's essential needs. While these activities offer temporary relief, their cyclical nature can escalate into compulsive behaviours that impair daily functioning, leading to addiction (Gray, 1987). Throughout history, behaviours like gambling and sex have been problematic, with notable examples like the Roman Emperor Commodus, whose gambling habits contributed to the fall of the empire (Hekster, 2002), and Fyodor Dostoyevsky, whose gambling addiction led to financial ruin (Fisher, 2024). With the rise of technology, new forms of addiction, such as video games and social media, are now emerging, raising the question of whether these behaviours are new disorders or simply reflections of societal and technological change.

Addiction is often defined as the compulsive engagement in behaviours that reduce pain or increase pleasure but cause significant harm, making it difficult to control the frequency or intensity of the behaviour (Denizet-Lewis, 2009; Griffith, 2005). Some behaviours, such as those seen in OCD or Tourette's syndrome, may not bring pleasure but can still be considered addictive (Gray, 1987). This raises the issue of whether classifying these behaviours as mental disorders could medicalise common challenges unnecessarily, particularly when behaviours like eating or love become excessive (Petry et al., 2018). Recent research shows a rising interest in behavioural addictions, with over 64,000 papers published on the topic between 2000 and 2021 (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition).

The recognition of behavioural addictions has evolved over time, beginning with Benjamin Rush's early identification of problematic sexual desire in 1812 (Rush, 1812). In 2010, the DSM-5 officially recognized behavioural addictions, marking a shift in understanding addiction as not just involving substances but also behaviours like gambling and excessive internet use (American Psychiatric Association, 2013). The DSM-5 introduced criteria for behavioural addictions, emphasizing six key components: salience, mood modification, tolerance, withdrawal, conflict, and relapse (Griffith et al., 2005). These criteria highlight that behavioural addictions, such as gambling disorder, share similar neurobiological characteristics with substance use disorders (Fauth-Bühler & Mann, 2017; Petry et al., 2018). Both involve issues with self-regulation and impulse control, with behaviours like compulsive spending, overeating, and kleptomania showing significant overlap with substance abuse disorders (Gray, 1987). Though the inclusion of gambling disorder in the DSM-5 was a significant step, other excessive behaviours like internet gaming, exercise addiction, and shopping are still under review (Billieux et al., 2021; First et al., 2023). Research indicates that these addictions typically begin in adolescence or early adulthood and often follow a chronic course with relapse and remission (Petry et al., 2014). Increasing awareness of these disorders, along with better understanding of their neurological and genetic components, can help in early identification and treatment (Kim & Seo, 2013). Research also suggests that medications, such as opioid antagonists and serotonergic antidepressants, could be effective in treating some behavioural addictions, though more research is needed (Schreiber et al., 2013; Potenza, 2023).

The biopsychosocial model remains one of the most accepted frameworks for understanding addiction, incorporating biological, psychological, and sociocultural factors (Donovan & Marlatt, 2005; Griffiths, 2005). Neuroscientific theories, such as the Reward/Executive Function Model, suggest that addiction results from alterations in brain areas like the Ventral Tegmental Area (VTA) and nucleus accumbens (O'Brien et al., 2006). Another theory focuses on decision-making vulnerabilities that drive compulsive behaviours (Jensen et al., 2008), while cellular memory theory highlights the role of molecules like Protein Kinase M zeta in maintaining addiction-related memories (Sacktor, 2011). This paper focuses on food addiction, problematic gambling, and social media addiction, which exemplify the complex interplay of biological, psychological, and social factors in behavioural addiction.

Food addiction, or "eating addiction," is a growing concern linked to increased global consumption of high-fat, high-sugar foods. This phenomenon is driven by the modern food environment, which encourages the consumption of quick, palatable foods (Mies et al., 2017). Food addiction is defined as a chronic condition where cravings for certain foods

become compulsive, similar to substance use disorders (Rodrigue et al., 2018). Research suggests that these foods activate the same brain systems as illicit drugs, contributing to feelings of pleasure and addiction (di Giacomo et al., 2022). Animal studies have shown that overeating sugar leads to withdrawal and cravings (Hoebel et al., 2009), and food addiction shares neurobiological and psychosocial factors with substance use disorders (Vasiliu, 2022). The Yale Food Addiction Scale (Gearhardt et al., 2008) has highlighted links between food addiction and mood disorders, poor emotion regulation, and lower self-esteem (Davis et al., 2011). In India, obesity and food addiction are rising, with obesity rates increasing from 12.1% in 2000 to 19.7% in 2016 (Wiedemann et al., 2018).

Gambling has long been part of human culture, dating back to ancient texts like the Rig Veda (Bhide, 2007). Though widely accepted as entertainment, a small percentage of people develop problematic gambling behaviour, which can lead to significant distress (Stucki & Rihs-Middel, 2007). Gambling disorder, recognized in the DSM-5, is characterized by persistent problematic gambling resulting in significant impairment (Lorains et al., 2011). Slot machines and online gambling, with their rapid payouts, are particularly addictive (Bakken et al., 2009). Studies suggest gambling shares neurobiological features with substance use, particularly the activation of dopamine (Zack et al., 2020). In India, gambling laws are restrictive, but illegal betting, particularly on cricket, remains widespread (Economic Times, 2016). Despite the prevalence of gambling problems, only 7-12% seek treatment (Lorains et al., 2011), and there is limited research in India on this issue (George et al., 2017).

Social media, an integral part of modern communication, has seen massive growth, with 4.9 billion users in 2023 (Wong, 2024). Though beneficial for connectivity, excessive use can lead to behavioural addiction, negatively impacting sleep, mental health, and social interactions (Alonzo et al., 2021; Koç & Gulyagci, 2013). Social media addiction is defined as excessive preoccupation with these platforms, interfering with daily life and well-being (Andreassen et al., 2014). In India, social media usage is pervasive, with 448 million Facebook users (Wong, 2024). Investigating the factors contributing to social media addiction in India is essential for understanding its broader impact.

Childhood adversity can disrupt emotional regulation, increasing the risk of later substance use and behavioural addictions (Kirsch et al., 2020). Studies have shown that early experiences of abuse and neglect alter brain development, making individuals more prone to addiction (Morris et al., 2021). A growing body of research suggests that adverse childhood experiences (ACEs) are linked to behavioural addictions such as gambling, food addiction, and social media use (Poole et al., 2017). ACEs have been associated with emotional eating (Michopoulos et al., 2015), food addiction (Hildebrandt & Greif, 2013), and problematic internet use (Schimmenti et al., 2014). These findings suggest that ACEs increase the likelihood of maladaptive coping mechanisms, leading to addiction (Wattick et al., 2023). This study aims to explore the role of ACEs in food addiction, problem gambling, and social media addiction and investigate how life skills might mediate these effects.

Life skills have gained increasing attention due to the rapid advancements in technology and the evolving demands of modern life. These skills help individuals effectively manage emotions, communicate, make decisions, and cope with everyday challenges. Research has shown that those with strong life skills are better equipped to handle adversity and are less likely to engage in risky behaviours, including substance use or addictive behaviours (Field

& Guez, 2018). Life skills are classified into cognitive, behavioural, and interpersonal abilities, which together help individuals navigate modern life (Hoskins & Liu, 2019). Cognitive skills, such as creative thinking and information processing, support educational and professional success, while behavioural skills like decision-making and stress management are vital for navigating life's challenges (Gutman & Schoon, 2013). Interpersonal skills, including communication and empathy, are essential for building healthy relationships (Singla et al., 2020). The World Health Organization (1999) defines life skills as essential abilities for coping with the challenges of everyday life, which foster personal development and well-being. These core skills include self-awareness, empathy, critical thinking, problem-solving, decision-making, communication, and emotional regulation, and form the foundation for individuals to thrive in various life contexts (WHO, 1999; UNICEF, 2012). Research indicates that life skills can help mitigate the negative effects of stress, anxiety, and depression, fostering a more resilient and mentally healthy population (Smith, 2004; Sobhi-Gharamaleki & Rajabi, 2010).

Life skills also play a critical role in addressing the effects of adverse childhood experiences (ACEs), which have been linked to a higher risk of maladaptive behaviours and health issues later in life (Merrick et al., 2017). Studies have shown that life skills training can improve mental health and reduce behavioural problems across diverse populations (Sukhodolsky et al., 2004; Matsuda & Uchiyama, 2006). Interventions focused on coping skills, interpersonal relationships, and stress management have proven effective in promoting well-being (Sobhi-Gharamaleki & Rajabi, 2010). Teaching life skills in schools helps individuals develop social abilities, collaborate effectively, and avoid potential problems (Castle, 1966). Therefore, integrating life skills training into educational systems and communities can enhance adaptive functioning and improve overall quality of life (Jamali et al., 2016).

This research explores whether life skills can mediate the impact of ACEs and reduce the risk of developing maladaptive coping mechanisms, such as food addiction, problematic gambling, and social media addiction. Given that much of the research on behavioural addiction has been conducted in Western populations, there is a need for more studies in Eastern contexts, especially in India. India’s unique socio-cultural and economic structure, combined with the growing influence of globalization, presents a distinct backdrop for understanding the relationship between ACEs, life skills, and behavioural addictions. As technology advances, behaviours such as food consumption, gambling, and social media use are becoming increasingly prevalent. This study aims to understand whether ACEs influence individuals to adopt addictive behaviours as coping mechanisms and whether life skills can help mitigate these effects, leading to healthier coping strategies in adulthood.

Hypotheses

1. Adverse childhood experiences will positively correlate with food addiction.
2. Adverse childhood experiences will positively correlate with problematic gambling.
3. Adverse childhood experiences will positively correlate with social media addiction.
4. Adverse childhood experiences will be negatively correlated with life skills.
5. Life skills will be negatively associated with problematic gambling, food and social media addiction.
6. Life skills will mediate the relationship between adverse childhood experiences and behavioural addictions.
7. $H_{0:}$ There will be no significant difference in life skills scores between males and females.

H_a: There will be a significant difference in life skills scores between males and females.

8. H_0: There will be no significant difference in the ACE scores of males and females
   H_a; There will be a significant difference in the ACE scores of males and females
9. H_0: There will be no significant relationship between age and adverse childhood experiences.
   H_a; There will be a significant relationship between age and adverse childhood experiences.
10. H_0: There will be no significant relationship between family type and adverse childhood.
    H_a; There will be a significant relationship between family type and adverse childhood.
11. H_0: There will be no significant relationship between socioeconomic status and adverse childhood experiences.
    H_a; There will be a significant relationship between socioeconomic status and adverse childhood experiences.
12. H_0: There will be no significant relationship between age and life skills
    H_a; There will be a significant relationship between age and life skills
13. H_0: There will be no significant relationship between family type and life skills.
    H_a; There will be a significant relationship between family type and life skills.
14. H_0: There will be no significant relationship between socioeconomic status and life skills.
    H_a; There will be a significant relationship between socioeconomic status and life skills.

METHODOLOGY

Sample

A total of 153 responses were collected via Google Forms from individuals residing in India, distributed through social media platforms (WhatsApp, LinkedIn, Instagram). The sample included 111 females and 42 males, with participants categorized into three age groups: 18-22 years (106 participants), 23-30 years (42 participants), and 30+ years (5 participants). Demographic information such as educational background, occupational status, family type, and socio-economic status was also recorded. Inclusion criteria were individuals aged 18 and above, while exclusion criteria involved those with a professionally diagnosed mental health condition.

Instruments

- **Adverse Childhood Experiences Questionnaire (ACE-10)**: The ACE-10 is a 10-item self-report questionnaire designed to assess adverse experiences before the age of 18. It covers various types of abuse (psychological, physical, sexual), neglect (physical and emotional), and household dysfunctions (e.g., substance abuse, mental illness, domestic violence). Respondents indicate the presence of these experiences with a "Yes" or "No" answer. The ACE score, which ranges from 0 to 10, is based on the number of positive responses. It has demonstrated good test-retest reliability and internal consistency, with a Cronbach's alpha of 0.70 (Anda et al., 2010; Oláh et al., 2023).
- **Yale Food Addiction Scale 2.0 (YFAS 2.0)**: The YFAS 2.0 is a 35-item self-report tool that evaluates food addiction using the diagnostic criteria for substance use disorders in the DSM-5. Participants rate the frequency of symptoms (e.g., cravings,

loss of control, withdrawal) over the past 12 months on an 8-point Likert scale (from 0, "never," to 7, "every day"). A higher score indicates greater severity of food addiction. The scale is considered psychometrically robust, with a Cronbach's alpha of 0.90, reflecting strong internal consistency (Gearhardt et al., 2016; Chen et al., 2022).

- **Bergen Social Media Addiction Scale (BSMAS)**: The BSMAS is a 6-item self-report scale designed to assess the risk of social media addiction. The scale evaluates six core components of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse, by measuring the frequency and impact of social media use. Respondents rate each item on a 5-point Likert scale (from 1, "very rarely," to 5, "very often"). The total score ranges from 6 to 30, with higher scores indicating a greater risk of addiction. The BSMAS has shown good psychometric properties across multiple studies and languages (Andreassen et al., 2016).
- **Problem Gambling Severity Index (PGSI)**: The PGSI is a 9-item self-report questionnaire used to assess the severity of gambling problems. It uses a 4-point Likert scale ranging from 0 (never) to 3 (almost always). The total score, which ranges from 0 to 27, helps classify participants into categories such as non-problem gambler, low-risk gambler, moderate-risk gambler, and problem gambler. A score of 8 or more indicates problematic gambling behaviour. The PGSI has strong internal consistency, with Cronbach's alpha coefficients typically above 0.90, and it has been validated in diverse populations (Ferris & Wynne, 2001; Auer et al., 2023).
- **Life Skills Scale (LS-ABC)**: The LS-ABC scale is a 19-item self-report tool that assesses life skills across three domains: affective, behavioural, and cognitive. Affective skills include emotional awareness and regulation; behavioural skills involve decision-making and problem-solving; and cognitive skills focus on critical thinking and stress management. The scale uses a 5-point Likert scale (1 = always true of me, 5 = not at all true of me). The LS-ABC has been validated for use in India and is psychometrically sound for measuring life skills in the adult population (Kamble & Kumar, 2023).

Research design

This study used a survey research design. It is a quantitative research method that involves collecting data from a group of respondents using interviews or questionnaires to gather information about an individual's behaviours, attitudes or characteristics and analyse data from a representative sample of interest.

Procedure

Data collection was conducted through an online survey using Google Forms. The survey included the relevant questionnaires along with demographic information. Participants were provided with detailed information about the purpose of the research and the importance of their participation. Clear instructions were given to ensure participants understood how to complete the form. To encourage honesty and ensure confidentiality, no personal identifiers (such as names or email addresses) were collected. The survey had no strict time limit, but participants typically completed it within 20 minutes. At the end of the form, participants were given toll-free helpline numbers in case they experienced distress, and they were thanked for their participation. Mediational analysis assessed the role of life skills as a mediator between ACEs and addiction risk. A t-test and ANOVA were used to examine gender differences and the influence of demographic factors on ACEs and life skills.

RESULTS

Table 1 Sociodemographic details representing the age, gender, socioeconomic status, and family type for the overall sample

Socio-demographic details	Sample (n=153)	
	N	%
Age		
18-22	106	69.3
123-30	42	27.5
30 and above	5	3.27
Gender		
Male	42	27.5
Female	111	72.6
SES		
under ₹1 lakh per year	20	13.1
₹2 lakhs to ₹15 lakhs per year	74	48.4
₹15 lakhs to ₹30 lakhs per year or more	17	11.1
Do not wish to disclose	42	27.5
Family Type		
Nuclear Family	109	71.2
Joint Family	33	21.6
Single-Parent Family	11	7.19

Table 1 indicates the sociodemographic details for the overall sample i.e. age, gender, socio-economic status (SES) and family type. The total participants were 153, 73% females and 27 % males. 69% were from the 18-22 age group while 28% were from the 23-30% age group and the remaining 3% were from the 30 and above age group. Of the majority of the participants, 48% fell under the SES of ₹2 lakhs to ₹15 lakhs per, 13% fell under the bracket of under ₹1 lakh per year and 11% belonged to the ₹15 lakhs to ₹30 lakhs per year or more year category while 28% of people chose not to disclose their SES. 71 % of participants lived in a nuclear family while 22% lived in a joint family and 7% lived with a single parent.

2. Descriptive Statistics

Table 2.1 Descriptive statistics representing mean and standard deviation of ACE, social media addiction, food addiction, problem gambling and life skills

Variable	Mean	SD	Minimum	Maximum
ACE	1.458	1.724	0	10
Social Media	14.542	5.496	6	28
Food Addiction	0.719	1.34	0	6
Problem Gambling	0.961	2.755	0	16
Life Skills	43.203	14.268	19	83

Table 2.1 indicates descriptive statistics for the overall sample i.e. for total Adverse Childhood experiences, Social Media addiction, Food Addiction, Problem Gambling, and Life Skills.

For ACEs (M= 1.458, SD= 1.724), Social Media (M=14.542, SD=5.496), Food Addiction (M=0.719, SD=1.34), Problem Gambling (M=0.961, SD=2.755), Life Skills (M=43.203, SD=14.268) were found. The mean ACE score is 1.458 so an average of individuals

experienced 1 to 2 adverse childhood experiences. The mean social media addiction is 14.542, suggesting that there's some degree of social media addiction in this sample. The mean score for problem gambling is 0.961, suggesting low-risk gambling in the population. The mean score of skills is 42.203, indicating a moderate level of life skills.

3. Independent Sample T-test

Table 3.1 Table showing T-test of gender with LS and ACEs

Variables	T	Df	P
LS	0.577	151	0.565
ACE	1.5	151	0.136

Note. Student's t-test.

There was no significant difference between life skills, ($t(151) = 0.577$, $p = 0.565$) and adverse childhood experiences ($t(151) = 1.5$, $p = 0.136$) scores of males and females. This suggests that gender does not seem to have a significant influence on either LS or ACEs.

4. ANOVA

Table 4.1 Table showing ANOVA of ACE with age groups

Cases	Sum of Squares	Df	Mean Square	F	P
Age	0.035	2	0.018	0.592	0.554
Residuals	4.484	150	0.030		

ANOVA results revealed no significant relationship between Age and Adverse Childhood Experiences, ($F(2,150) = 0.592$, $p = 0.554$). This indicates that the age of individuals does not appear to influence their reported adverse childhood experiences.

Table 4.2 Table showing ANOVA of ACE with family types

Cases	Sum of Squares	Df	Mean Square	F	P
Family Type	0.165	2	0.082	2.837	0.062
Residuals	4.355	150	0.029		

ANOVA results revealed a marginally significant relationship between Family Type and Adverse Childhood Experiences, ($F(2, 150) = 2.837$, $p = 0.062$). This indicates that there's some influence of family type on the adverse childhood experiences experienced by individuals.

Table 4.3 Table showing ANOVA of ACE with socioeconomic status

Cases	Sum of Squares	df	Mean Square	F	P
SES	0.169	3	0.056	1.925	0.128
Residuals	4.351	149	0.029		

ANOVA results revealed no significant relationship between socioeconomic status and Adverse Childhood Experiences, ($F(3, 149) = 1.925$, $p = 0.128$). This indicates that there's no influence of the socioeconomic status of the individuals on the reported adverse childhood experiences.

Table 4.4 Table showing ANOVA of life skills with age groups

Cases	Sum of Squares	df	Mean Square	F	P
Age	136.872	2	68.436	3.109	0.048
Residuals	3301.354	150	22.009		

ANOVA results revealed a significant relationship between Age and Life skills, ($F(2, 150) = 3.109$, $p = 0.048$). This indicates that as people get older, their life skills tend to change.

Table 4.5 Table showing ANOVA of life skills with family type

Cases	Sum of Squares	df	Mean Square	F	P
Family Type	21.465	2	10.732	0.471	0.625
Residuals	3416.762	150	22.778		

ANOVA results revealed no significant relationship between family type and Life skills, ($F(2, 150) = 0.471$, $p = 0.625$). There was no influence of family type on the level of life skills an individual has.

Table 4.6 Table showing ANOVA of life skills with socioeconomic status

Cases	Sum of Squares	df	Mean Square	F	P
SES	170.705	3	56.902	2.595	0.055
Residuals	3267.522	149	21.930		

ANOVA results revealed a significant relationship between Socioeconomic status and Life skills, ($F(3, 149) = 2.595$, $p = 0.055$). This indicates that people's life skills can be influenced by their socioeconomic background.

5. Correlation

Table 5.1 Pearson's r correlation on ACE, social media addiction, food addiction, problem gambling and life skills

Variable	1	2	3	4	5
1. ACE	—				
2. Social Media	0.171*	—			
3. Food Addiction	0.116	0.310***	—		
4. Problem Gambling	0.142	0.108	0.295***	—	
5. Life Skills	0.160*	0.410***	0.355***	0.118	—

* $p < .05$, ** $p < .01$, *** $p < .001$

There was a significantly positive correlation between ACE and Social Media ($r = 0.171$, $p < .05$), Food Addiction and Social Media ($r = 0.310$, $p < .001$), Problem Gambling and Food Addiction ($r = 0.295$, $p < .001$), Social Media and Life Skills ($r = 0.410$, $p < .001$), and Food Addiction and Life Skills ($r = 0.355$, $p < .001$). In addition, a positive correlation was observed between ACE and Life Skills ($r = 0.160$, $p < .05$). The most prevalent influence of ACE is on social media addiction.

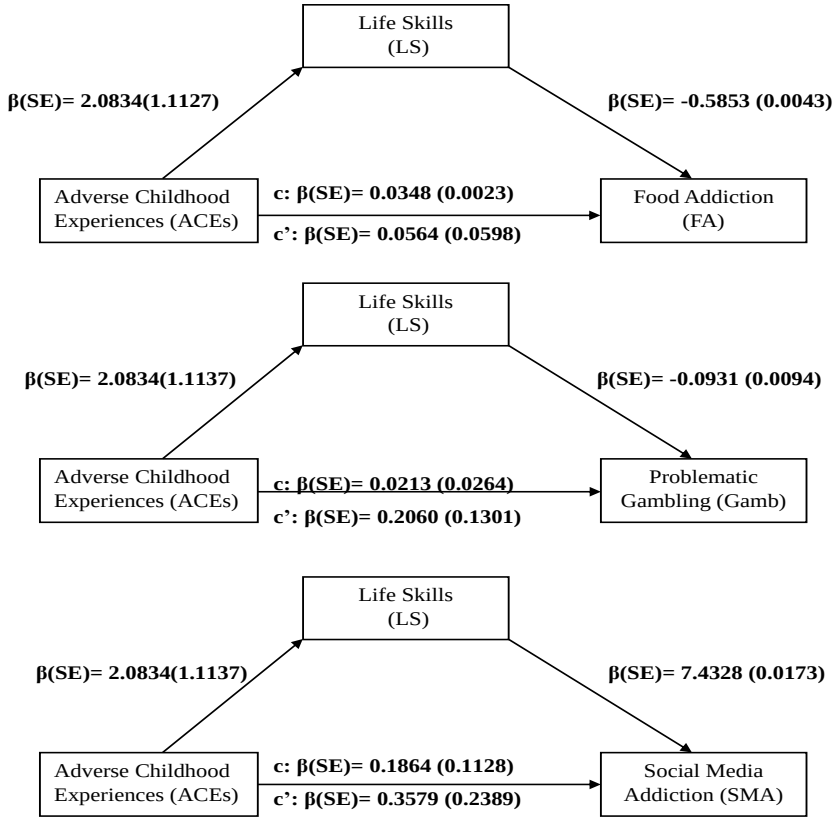
6. Mediation Analysis

Table 6.1 Results of mediation analysis combined for adverse childhood experiences, food addiction, problem gambling and social media addiction with life skills as the mediator

	Mediator				Dependent Variable											
	Life Skills (LS)				Food Addiction (FA)				Problem Gambling (Gamb)				Social Media Addiction (SMA)			
Antecedents	*B*	SE	t	R^2	*B*	SE	t	R^2	*B*	SE	t	R^2	*B*	SE	t	R^2
				0.0227				0.1031				0.0279				0.1765
LS	--	--	--		0.167	0.0043	3.8568		0.0102	0.0094	1.0879		0.0895	0.0173	5.1796	
ACEs	70.5975	1.1127	1.8724		-0.5853	0.0598	0.9432		-0.0931	0.1301	1.5834		7.4328	0.2389	1.4983	
					Effect	SE	LLCI	ULCI	Effect	SE	LLCI	ULCI	Effect	SE	LLCI	ULCI
Indirect effect of life skills via adverse childhood experiences					0.0348	0.0243	0.0023	0.0961	0.0213	0.0264	-0.0174	0.086	0.1864	0.1128	0.0148	0.4534
Direct effect of life skills via adverse childhood experiences					0.0564	0.0598	-0.0618	0.1747	0.206	0.1301	-0.0511	0.4631	0.3579	0.2389	-0.1141	0.83

In the mediational analysis, ACEs were the predictor variable, with Life Skills (LS) as the mediating factor, and Food Addiction (FA), Problem Gambling (Gamb), and Social Media Addiction (SMA) as the dependent measures of the study. The regressions path between adverse childhood experiences significantly predicts life skills albeit marginally (b= 70.60, $t(151) = 1.87$, $p \leq .05$). It accounted for a 2.27% variance in the life skills of the individuals ($F(1, 151) = 3.50$, $p \leq .05$, $R^2 = 0.02$). The model was significant for FA (b= 0.16, $t(150) = 3.85$, $p \leq 0.05$) and Social Media Addiction (b = 0.08, $t(150) = 5.17$, $p \leq .05$), but was not statistically significant for Problematic Gambling (b = 0.01, $t(150) = 1.08$, $p \leq .05$). The model explains only 10.31% of the variance in Food Addiction ($F(2, 150) = 8.62$, $p \leq .05$, $R^2 = 0.10$), 2.79% in Problematic Gambling ($F(2, 150) = 2.15$ $p \leq .05$, $R^2 = 0.02$) and 17.65% of the variance in Social Media Addiction ($F(2, 150) = 16.07$, $p < .05$, $R^2 = 0.17$) and hence explain only a small portion of the variability observed (Figure 1). Life skills emerged as a significant predictor for FA and SMA, while ACE significance varies.

Figure 1 Model 4 Mediational Analysis Pathways between ACEs and FA, ACEs and Gamb and ACEs and SMA, and ACEs with LS as the mediator.



The combined regression paths between ACEs, life skills, food addiction, problematic gambling and social media addiction were analyzed. Overall, the mediation model as depicted by the indirect path (c), significantly predicted food addiction (Effect = 0.03, 95% C.I. (0.02, 0.09)) as well as social media addiction (Effect = 0.18, 95% C.I. (0.01,0.45)). After controlling for LS, the direct path (c') shows no significant association between ACE and FA/SMA.

DISCUSSION

This study aimed to examine the role of adverse childhood experiences (ACEs) in increasing the risk of behavioural addictions, such as food addiction (FA), gambling, and social media addiction (SMA). Additionally, it explored the potential mediating role of life skills (LS) in reducing the likelihood of developing maladaptive coping mechanisms, including these behavioural addictions.

The correlation analysis revealed that the relationship between ACEs and food addiction did not support hypothesis H1 (see Table 5.1). This finding contrasts with previous research by Holgerson et al. (2018), which demonstrated a significant association between higher ACE scores and an increased likelihood of screening positive for food addiction, as well as more severe symptoms. Similarly, Wattick et al. (2023) identified strong links between food addiction and factors such as ACEs, depression, anxiety, sex, and stress. Wiss et al. (2020) also highlighted that early life adversity can contribute to food addiction, particularly in the context of obesity, with sex-specific changes in reward network connectivity. These studies

underscore the importance of early childhood influences in shaping individuals' relationships with food. Consequently, hypothesis H9 is rejected, as no positive correlation between ACEs and food addiction was found in this study.

Unexpectedly, significant correlations were observed between food addiction and social media addiction, as well as between food addiction and problematic gambling (see Table 5.1). This aligns with Shannen et al. (2020), who reported indirect links between social media use and an uncontrollable urge to eat, mediated by increased impulsivity. Ayyıldız and Şahin (2022) also identified a positive relationship between social media usage and emotional or external eating behaviours. Similarly, Jiménez-Múrcia et al. (2017) found that food addiction affects 9.2% of individuals seeking treatment for gambling disorders, indicating poorer psychological and emotional well-being in this group.

No significant relationship was found between ACEs and problematic gambling (see Tables 5.1 and 6.1), which is inconsistent with Lotzin et al. (2018), who found a strong connection between ACEs and gambling issues. As a result, hypothesis H2 is rejected due to the lack of a positive correlation between these variables.

A significant positive correlation was observed between ACEs and social media addiction ($r = 0.171^*$, $p < .05$; Table 5.1), supporting hypothesis H3. This suggests that ACEs may create cognitive-emotional vulnerabilities that predispose individuals to excessive social media use. These findings align with studies such as Lin et al. (2021) and Worsley et al. (2018), which highlighted the influence of childhood maltreatment on social media use. For example, Chegeni et al. (2022) demonstrated that childhood psychological abuse positively predicts social media addiction among college students.

Hypothesis H4, which proposed a negative correlation between ACEs and life skills, was not supported by the findings. Instead, a positive correlation was observed ($r = 0.160$, $p < .05$; Table 5.1). The mediation model (Figure 1) also showed that ACEs significantly, though marginally, predict life skills, explaining 2.27% of the variance. This challenges the assumption that ACEs result in diminished life skills and suggests that other factors might influence this relationship, warranting further investigation.

As depicted in Figure 1, life skills were found to significantly predict food addiction and social media addiction but not problematic gambling, consistent with the correlation results (Table 5.1). Specifically, life skills were positively correlated with social media addiction ($r = 0.410$, $p < .001$) and food addiction ($r = 0.355$, $p < .001$) but not with problematic gambling. These results suggest that individuals engaging more with social media platforms or experiencing food addiction may have higher levels of life skills. This counterintuitive finding contrasts with the negative health outcomes and management challenges associated with food addiction (Burmeister et al., 2013) and the perception of social media as a distracting or time-consuming activity (Koessmeier & Büttner, 2021). Consequently, hypothesis H5, which proposed a negative association between life skills and problem gambling, food addiction, and social media addiction, is rejected.

Hypothesis H6 posited that life skills would mediate the relationship between ACEs and behavioural addictions, including gambling, food addiction, and social media addiction. The mediation analysis in Figure 1 revealed significant indirect effects of life skills on food addiction and social media addiction through ACEs, suggesting partial mediation. This

implies that individuals with higher levels of life skills may be less vulnerable to the adverse effects of ACEs in developing these addictions. These findings align with research by Pierce et al. (2022), which highlighted the protective role of social skills against the effects of ACEs. Moshki et al. (2014) also emphasized the value of life skills training in enhancing decision-making, problem-solving, stress management, and critical thinking, thereby reducing tendencies toward addictive behaviour. Therefore, hypothesis H14 is accepted. However, the lack of statistically significant direct effects of life skills on food addiction and social media addiction through ACEs suggests that additional factors may influence these behaviours. The mediational model explains 10.31% of the variance in food addiction, 2.79% in problematic gambling, and 17.65% in social media addiction, indicating that other unexplored factors contribute to the observed variability.

The study found no significant difference in life skills scores between males and females (Table 3.1), supporting hypothesis H7 (H0). This suggests that males and females possess comparable levels of life skills, potentially reflecting societal shifts towards gender equality in educational and social contexts. Additionally, no significant differences in ACE scores between males and females were found (Table 3.1), supporting hypothesis H8 (H0). These findings contradict prior research, by Baglivio and Epps (2015), which suggested that females tend to experience a higher proportion of ACEs.

No significant relationship between age and ACEs was observed (Table 4.1), indicating that ACE prevalence does not vary substantially with age. However, a marginally significant relationship was identified between family type and ACEs (Table 4.2), suggesting that family structure may play a modest role in ACE exposure. Previous studies, such as Dube et al. (2006), have highlighted the influence of family structure on the likelihood of experiencing ACEs, particularly in single-parent households or families with parental instability.

No significant relationship was found between socioeconomic status (SES) and ACEs, leading to the rejection of hypothesis H10 (H0) (Table 4.3). Conversely, age was positively correlated with life skills (Table 4.4), supporting hypothesis H11 (H0). This indicates that life skills tend to improve with age, consistent with findings by Chavda and Trivedi (2015). No significant association was found between family type and life skills (Table 4.5), supporting hypothesis H12 (H0). This suggests that family structure does not significantly influence life skills development, aligning with research by Dhingra and Chauhan (2017).

A significant positive relationship was found between SES and life skills (Table 4.6), supporting hypothesis H14 (H0). This indicates that individuals from higher socioeconomic backgrounds tend to have better-developed life skills, consistent with Agadi (2022), who highlighted the impact of SES on adolescent life skills development.

Future research could explore how specific types of ACEs influence particular addictive behaviours and further investigate the positive correlation between life skills, food addiction, and social media addiction observed in this study. Additional research could also delve into the relationship between ACEs and life skills across diverse demographic variables.

CONCLUSION

This study examined the relationship between adverse childhood experiences (ACEs) and behavioural addictions, along with the mediating role of life skills, within an Indian

population. Findings revealed a positive correlation between ACEs, social media addiction, and life skills, though no significant link was found between ACEs and food addiction. Life skills partially mediated the relationship between ACEs and both food addiction and social media addiction. However, ACEs did not show significant direct or indirect effects on problematic gambling through life skills. Demographic factors, including socioeconomic status and age, showed some influence on life skills, highlighting key areas for further exploration.

These results have practical implications for improving clinical interventions and preventive measures. Assessing ACEs early in treatment can offer insights into individual challenges, while life skills development programs may mitigate the risk of behavioural addictions. Incorporating life skills education into school curricula could foster healthier coping mechanisms and reduce reliance on maladaptive behaviours like binge eating, excessive social media use, or gambling. Raising community awareness of food addiction, social media addiction, and problem gambling can promote early identification and support for affected individuals.

The study's limitations include the use of a convenience sample that was small, predominantly female, and largely composed of participants aged 18–22 years, reducing the generalizability of findings. The cross-sectional design prevents causal inferences, and reliance on self-reported ACEs may have introduced recall and social desirability biases. Future research should employ diverse, nationally representative samples and longitudinal or mixed-method approaches to provide more robust and comprehensive insights.

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