The Relation Between Childhood Physical and Sexual Abuse and the Experience of Positive Affect Later in Life

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THE RELATION BETWEEN CHILDHOOD ABUSE AND POSITIVE AFFECT

Abstract

Childhood maltreatment (CM), including physical and sexual abuse, has been associated with adverse psychological and physical outcomes. Positive affect (PA) has been associated with adaptive behaviours that can increase well-being. Therefore, the current research explores the relationship between PA dynamics (intensity, variability and instability) later in life and physical and sexual abuse in childhood. Previous research, operationalizing positive affect by using two clusters, did hardly find associations regarding these abuse types. For this reason, the current study measured the positive emotions (energetic, enthusiastic, cheerful, relaxed, calm, content) separately. Additionally, the current study explores the role of age in this relationship, since positive emotion dynamics are subject to developmental trajectories. The data was selected from the "HowNutsAreTheDutch" project (*N=290*). All participants provided longitudinal data of their experienced emotions alongside retrospective physical and sexual abuse reports. Results showed no significant relationship between physical or sexual abuse with any of the PA dynamics. PA intensity did increase with age, and variability and instability decreased. However, age did not play a role in the relationship between abuse and PA. These findings suggest measuring PA emotion dynamics distinctively does not gain more significant insights into the relationship with abuse. While physical and sexual abuse are found to negatively impact well-being, their influences on PA dynamics seem to be limited. Future research should consider co-occurrence with other abuse types, higher levels of reported abuse and more prospective data collection.

Keywords: positive affect, physical abuse, sexual abuse, emotion dynamics

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Positive Affect Later in Life

World-famous Buddhist, the Dalai Lama, once said 'the purpose of life is to be happy,' and happiness has indeed been found to be a highly desired goal for individuals (Kesebir & Diener, 2008). However, this raises an important question: can happiness persist in the face of life's adversities? The current research explores this question by examining such a life adversity: childhood maltreatment (CM). This is an experience that can strongly impact well-being (Coelho et al., 2014; World Health Organization, 2006). It is important to assess CM, because it is experienced by approximately 40% of the world's population, therefore it is a common experience (Stoltenborgh et al., 2014). Individuals that experienced CM present more physical health complaints and are vulnerable to developing mental disorders (Coelho et al., 2014). Understanding how CM influences emotion dynamics is crucial, as it may offer insights into emotional patterns that persist into adulthood and how individuals cope with such adversities. Additionally, research shows that emotion dynamics can influence mental health outcomes by predicting responses to the treatment of conditions, such as depression (Husen et al., 2016).

However, research found psychopathology does not necessarily predict the absence of positive emotions, since people experiencing symptoms of severe depression, still report experiencing positive emotions (Van Der Krieke et al., 2015). This shows that high symptom levels do not necessarily preclude enjoying life. In addition to making enjoyment of life possible, positive emotions appear to be functional in various ways; they can help to boost resilience, creativity and problem solving (Eryılmaz, 2024; Robinson & Krishnakumar, 2023). Similarly, experiencing low positive affect (PA), the lack of positive emotional states, is associated with poorer functioning and resilience to daily and extreme stressful events (Etter et al., 2013). However, a decrease in PA does not necessarily mean an increase in negative

affect; it is important to note these states can change independently of each other (Myroniuk et al., 2024; Reitsema et al., 2023).

Emotion Dynamics

Research has shown a lot of emotions are universal to all human cultures, which helps us to quickly and effectively respond to our environment (Ekman, 1992). While all people experience the same basic emotions, the way they are experienced can differ based on many individual factors, like cognition (Hofmann & Doan, 2018). This means a person's thoughts can cause emotions and vice versa. Additionally, theories explain that emotional experiences are affected by language, culture and are socially influenced (LeDoux, 2015). Therefore, it is natural to assume emotions are dynamic and can be shaped by multiple factors. In the current study the term affect is used to describe an emotional state. Previous research also described affect as the experience of an emotional state, which can be defined on two dimensions: valence (unpleasantness vs. pleasantness) and arousal (activation vs. deactivation) (Hofmann & Doan, 2018). This study will focus on both activated and deactivated emotional experiences and pleasantness, which describes the beforementioned 'positive affect (PA)'.

In the current study emotion dynamics are divided into three categories: intensity, variability and instability (Myroniuk et al., 2024). Intensity is defined by the strength of the experienced emotions, variability is defined by the range of fluctuations of the emotions and instability is defined by the magnitude and temporal dependency of fluctuations (Myroniuk et al., 2024). Regarding intensity a meta-analysis by Reitsema et al. (2022) identified PA intensity as a key difference between youth with mental health problems and typically developing youth. Additionally, Reitsema et al. (2023) found high intensity of PA to negatively correlate with depression and neuroticism and positively with feeling accepted and comfortable in people's company. Regarding variability and instability, a meta-analysis found higher instability and higher variability to be weakly correlated with lower psychological

well-being (Houben & Kuppens, 2015). Additionally, Spindler et al. (2015) found PA instability to be associated with increases in life-satisfaction. On the other hand, Schoevers et al. (2021) found higher instability of PA in patients with an anxiety or a depressive disorder compared to a healthy control group. In short, the three emotion dynamic measures all display complex and contrasting relations to PA and well-being. This shows the importance of looking into their unique role in the current study. Additionally, most research on the influence of childhood abuse on emotions later in life, focuses on negative affect (Etter et al., 2013). Therefore, the current research emphasizes the role of PA emotion dynamics. This is done by building on the research of Myroniuk et al. (2024).

Positive Affect and Childhood Maltreatment

There are multiple types of CM, but the current research will specifically focus on sexual and physical abuse. Sexual abuse is described as unwanted or coercive sexual contact, exposure to age-inappropriate sexual environments, or sexual exploitation. Physical abuse is described as actual or attempted infliction of physical pain, including severe corporal punishment (Myroniuk et al., 2024). Sexual abuse is largely out of sight, while signs of physical abuse can be more visible (Myroniuk et al., 2024). Regarding sexual abuse, research shows that the way emotions are regulated after the abuse, and not the abuse itself, is what causes psychological distress (Marx & Sloan, 2002). Therefore, it is interesting to see how these distinct types of abuse are associated with emotion dynamics.

However, research focusing on the relation between childhood sexual and physical abuse and PA, show contrasting results. The experience of both physical and sexual abuse is found to be associated with lower PA (Etter et al., 2013; Banford & Busby, 2019; Dokuz et al., 2022). However, the research by Myroniuk et al. (2024) did not find these associations. The study included a measure consisting of six emotions divided into two groups: positive affect activated (PAA), which included feeling energetic, enthusiastic, or cheerful and positive

affect deactivated (PAD), which included feeling relaxed, calm, and content. There was no significant association between sexual and physical abuse and PAD or PAA on any of the domains regarding intensity, stability, and variability. Although sexual abuse was associated with negative affect dynamics, there were only weak associations with PA. The same weak associations were seen in the case of physical abuse (Myroniuk et al., 2024).

This suggests that the unique experience of physical or sexual abuse, does not have a significant impact on emotion dynamics later in life. However, it is important to note that in the research of Myroniuk et al., (2024), PA is measured in a different way than in research that did find associations (Etter et al., 2013; Banford & Busby, 2019; Dokuz et al., 2022). These studies conceptualize PA in other terms (e.g. feeling happy or strong) or use a smaller amount of terms, while the research of Myroniuk et al., (2024) combines six terms into two clusters. According to Reitsema et al. (2023), research on emotions dynamics should take into consideration that using broad affect scales could obscure the existence of different patterns when individual emotions are examined.

Therefore, the current research aims to gain more insight into the distinct emotions within the used definition of PA. Focusing on specific emotions could possibly show associations between childhood physical and sexual abuse and PA, which are not observed before. However, the research on the relationship between CM and the dynamics of single positive emotions is scarce. The current research aims to fill this gap.

Emotion dynamics in relation to developmental changes

It is important to consider that the experience of PA can develop and change over the years (Buecker et al., 2023). Research on intensity of emotions show mixed results. While some research suggests PA intensity increases with age, other research suggests PA intensity decreases (Buecker et al., 2023; Carstensen et al., 2011). An increase in PA intensity could possibly be explained by the fact that, with increasing age, people have been exposed to more

emotional responses and therefore have been habituated in their responses and emotional regulation (Lawton, 2001). Regarding emotional variability and emotional instability, research shows a decrease of both over the years (Larson et al., 2002; Reitsema, 2024). This could be explained by the fact that old adults report feeling more in control over their emotions (Lawton, 2001).

Additional to emotional regulation, the development of emotional differentiation strategies could help explain these findings. Emotional differentiation describes how specific people can experience and name their emotional experiences, which has been found to increase from adolescence into adulthood (Nook et al., 2018; Reitsema, 2024). Higher levels of emotional differentiation have been associated with more adaptive emotional responses (Reitsema, 2024). Taken together, these findings suggest that, with age, emotional patterns seem to show lower instability and variability. This can possibly be explained by growing adaptive emotional regulation and emotional differentiation strategies.

Current research

The data from Myroniuk et al. (2024) show no significant associations between positive emotion dynamics and childhood sexual and physical abuse, but there were some studies that did find relations (Etter et al., 2013; Banford & Busby, 2019; Dokuz et al., 2022). These studies all measured PA using other, or a smaller amount of terms than the PA scale used by Myroniuk et al (2024). Therefore, the current research will exploratively examine the distinct emotions within this scale. From this prior research, the following hypothesis derives:

When specific positive emotions (energetic, enthusiastic, cheerful, relaxed, calm, content) in relation with childhood physical or sexual abuse are measured, results will show different associations regarding intensity, variability and instability, opposed to when positive affect is measured in two clusters (PAA and PAD)

Additionally, research has shown that emotion dynamics are subject to developmental

changes and especially variability and instability decrease with age (Larson et al., 2002; Reitsema, 2024). Therefore, the current study also explores the moderating role of age in the association between physical and sexual abuse in childhood and positive emotion dynamics.

To examine this, the data from the study by Myroniuk et al. (2024) will be used.
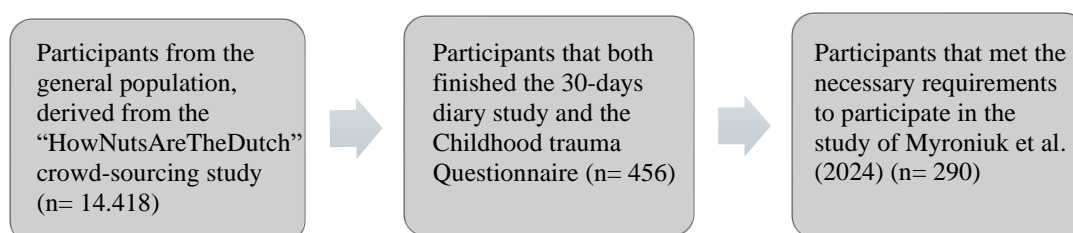
Method

Participants

As mentioned before, the current study builds on previous research of Myroniuk et al. (2024), which included data derived from the "HowNutsAreTheDutch" study (Van Der Krieke et al., 2015, 2016). The participants were recruited through an open call to the general Dutch-speaking public, by inviting them to visit the www.HowNutsAreTheDutch.com website. The launch received widespread attention in Dutch media. From the 14.418 participants that started the study, 456 participants were selected, who completed both the 30-days diary study and the Childhood Trauma Questionnaire (CTQ) (Myroniuk et al., 2024; Thombs et al., 2009). Participants were required to: finish at least 65% of the measurements, be eighteen years or older, have a phone with internet connection and have no major daily routine disruptions during the 30-days study period. Additionally, they had to approve usage of their anonymized data. Based on these requirements the final sample included 290 participants (Myroniuk et al., 2024) (see Figure 1).

Figure 1

Visual Representation of Sampling Method

| Participants from the general population, derived from the "HowNutsAreTheDutch" crowd-sourcing study (n= 14.418) | Participants that both finished the 30-days diary study and the Childhood trauma Questionnaire (n= 456) | Participants that met the necessary requirements to participate in the study of Myroniuk et al. (2024) (n= 290) |

Procedure

To obtain the data, Van Der Krieke et al. (2015) used a crowd-sourcing method, which enables the collection of big datasets and unique information about the general public (Bevelander et al., 2014; Revelle et al., 2010). By pairing a cross-sectional study, measuring mental symptoms and strengths, as well as a longitudinal study, in the form of a diary study with momentary assessments, the goal was to gain a more accurate and in-depth picture of mental health dynamics in the dutch population (Myroniuk et al., 2024).

The cross-sectional study started on the 19th of December 2013 and consisted of modules that were uploaded on the site where the participants signed up. Four of these modules were mandatory ("start," living situation, affect and well-being), but participants could also choose to complete additional modules with themes such as childhood adversity.

Additionally, the longitudinal diary data collection started on the 22nd of May 2014, using the same platform. Participants had to answer questions regarding their mood and activity three times a day with a six-hour interval, over the course of 30 days, by using a phone app. There was no financial reward for taking part in the study, but participants did receive personalized feedback and suggestions regarding health services, based on their filled in modules and diary data. The used data was extracted on the 19th of December 2018 and the study was approved by the Medical Ethical Committee of the University Medical Centre Groningen (Myroniuk et al., 2024).

Measures

Positive Affect Emotion Dynamics

The current study will specifically focus on the dynamics of positive affect. Positive affect was measured by using items from the circumplex model of affect (Russel, 1980; Yik et al., 1999). This model separates positive emotions into two groups: positive affect activated (PAA), which included feeling energetic, enthusiastic, or cheerful and positive affect deactivated (PAD), which included feeling relaxed, calm, and content. Participants had to rate

each item on a visual analogue scale ranging from Not at all (0) to Very much (100). To examine the dynamic features of these emotions, this study included the following variables: intensity, variability, and instability. The data of these emotion dynamics were derived from the diary study. Myroniuk et al. (2024) calculated these dynamic measures for four composite affect measures (PAA, PAD, NAA, and NAD). However, regarding PAD and PAA there were no significant associations with the emotion dynamics and physical and sexual abuse (Myroniuk et al., 2024). Therefore, the current study examined whether unique positive emotions (energetic, enthusiastic, cheerful, relaxed, calm, and content) will show associations, that clustered emotions did not show.

Intensity was assessed by measuring the mean intensity of all the distinct positive affect emotions across time. Variability was measured by calculating the standard deviation, which shows the overall range of fluctuations of the distinct emotions across time. Lastly, instability was measured by computing the mean squared successive difference (MSSD), which shows the magnitude of moment-to-moment fluctuations (Reitsema et al., 2022).

Childhood Sexual and Physical Abuse

Regarding the childhood maltreatment variable, the current study specifically focused on physical and sexual abuse. Childhood sexual and physical abuse were measured by using a Dutch version of the short form of the Childhood Trauma Questionnaire, a retrospective self-report measure (Myroniuk et al., 2024; Thombs et al., 2009). The items were scored on a 5-point Likert scale (1= never true, 2=rarely true, 3=sometimes true, 4= often true, 5= very often true). An example of an item in the case of physical abuse is: "People in my family hit me so hard it left me with bruises or marks".[1] An example of an item in the case of sexual abuse is: "Someone tried to make me do sexual things or watch sexual things".[2] Because of translational non-equivalence, one item for sexual abuse was omitted in the Dutch version ("I believe I was molested"). Both the subscales for physical (α= .81) as well as sexual abuse (α=

.93) showed good reliability (Myroniuk et al., 2024).

Statistical Procedures

All the analysis were preformed using SPSS (*IBM SPSS Statistics*, n.d.). Before preforming the regression analysis, the required assumptions were checked (Flat & Jacobs, 2019). The independence of observations is ensured, because of the randomized data collection process. Normality of the data was checked by looking at the kurtosis and skewness of the data distribution. Additionally, homoscedasticity was assessed by making a scatterplot, looking at the variance of the residuals. Based on this information, linearity was also examined. Lastly, multicollinearity was examined by computing the variance inflation factors of physical and sexual abuse (Myroniuk et al., 2014).

In the regression analysis physical and sexual abuse functioned as the independent variable and the dynamics of the positive affect emotions (energetic, enthusiastic, cheerful, relaxed, calm, and content) functioned as the dependent variables.

Since emotion dynamics are subject to developmental changes, the current study explores whether different age groups will show different emotional dynamics regarding positive affect (Buecker, 2023; Nook et al., 2018; Reitsema, 2024). Therefore, the regression analyses were repeated in three different age groups: emerging adulthood (18-29 years), young and middle adulthood (30-45 years) and middle to late adulthood (> 45 years). These groups are based on the transitional factors that can influence well-being in distinct stages of life (Halloran, 2024).

Results

Descriptive Statistics

The age range of the participants varied from 19 to 73 (*M =41.22, SD =13.50*). The sample consisted of predominantly female participants (~83%) and highly educated people (~94%). Table 1 shows all the important values. Overall, the values of the emotions do not

deviate with large numbers.

On average, people seem to experience being content at the highest intensity level (*M*= 61.01*, SD* =13.25) and feeling energetic at the lowest intensity (*M*= 50.03*, SD*=13.15). Additionally, energetic had the highest mean regarding variability *(M*= 17.18*, SD*= 4.49)*, which means this emotion showed more fluctuations, while relaxed showed the least fluctuations (*M*= 14.95*, SD*= 4.17). This was also the case regarding instability (*M*= 18.53*, SD*= 6.13) and energetic again showed the highest mean *(M*= 21.49*, SD*= 6.11)*, which indicates this emotion fluctuates the most over time.

Table 1

Descriptive Statistics

Variable	Mean	SD	Min	Max
Age	41.22	13.5	19	73
Education	7.33	.92	4	9
Emotion dynamics				
Intensity (M)				
Energetic	50.03	13.15	3.11	91.96
Enthusiastic	51.98	13.27	3.05	91.76
Cheerful	56.22	13.50	5.09	93.76
Relaxed	60.84	12.20	4.41	97.17
Calm	57.79	12.76	2.92	95.78
Content	61.01	13.25	2.64	96.23
Variability (SD)				
Energetic	17.18	4.49	5.96	35.44
Enthusiastic	16.45	4.46	4.87	31.09

Cheerful	16.36	4.49	6.13	31.13
Relaxed	14.95	4.17	4.13	27.54
Calm	15.52	4.32	4.40	29.35
Content	15.75	4.25	2.90	29.27
Instability (MSSD)				
Energetic	21.49	6.11	7.83	41.59
Enthusiastic	19.94	5.92	5.26	44.14
Cheerful	19.51	5.77	7.23	37.19
Relaxed	18.53	6.13	5.33	41.44
Calm	19.35	5.85	5.08	36.87
Content	19.0	5.67	3.89	37.80
Childhood Maltreatment				
Physical abuse	5.81	2.14	5.0	21.0
Sexual abuse	4.93	2.49	4.0	20.0

Checking the Assumptions

As mentioned before, the CM variables (physical and sexual abuse), were treated as continuous variables. This presumes the data must be normally distributed in order to perform regression analysis. However, when looking at q-q plots of the data and after performing the Shapiro-Wilk test, the results were inconclusive on whether the data could be considered normal. To adhere to the possible non-normality of the data, Spearman's rho, a non-parametric measure, was used to compute correlations.

Additionally, the physical and sexual abuse variables were transformed into binary variables. The cutoff scores of these variables originate from a document published by David Bernstein (1996), one of the developers of the CTQ and the additional short form. He divided

the scores per CM type in four groups (none, low, moderate, and severe). In the current research the scores were cut off between the group that did not report any abuse and all participants that did report a level of abuse (0 = not abused, 1 = abused). This way all individuals that endured some level of abuse were included. Physical abuse was assumed to be present when participants scored > 7 and sexual abuse when participants scored > 5.

Testing the Hypothesis

Correlational analysis

Overall, there were no significant correlations between physical or sexual abuse and the dynamics of the distinct positive emotions (see Table 2). However, positive affect intensity did show significant correlations with age in the case of feeling energetic (ρ = .146, p= .013), cheerful (ρ = .155, p= .008) and calm (ρ = .118, p= .044). In the case of variability and instability, age showed exclusively significant and negative relationships with the emotion dynamics (see Table 2).

Table 2

Spearman's Rho Correlations

	Physical Abuse		Sexual Abuse		Age	
	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value
Emotion dynamics						
Intensity (M)						
Energetic	-.073	.213	-.059	.319	.146*	.013
Enthusiastic	-.034	.564	-.033	.580	.070	.236

Cheerful	-.074	.208	-.043	.461	.155**	.008
Relaxed	-.044	.458	-.052	.377	.049	.406
Calm	-.052	.381	-.008	.898	.118*	.044
Content	.004	.946	-.037	.532	.054	.360
Variability						
(SD)						
Energetic	.028	.637	-.090	.126	-.232**	<.001
Enthusiastic	.076	.196	-.069	.238	-.216**	<.001
Cheerful	.056	.345	-.034	.563	-.192**	.001
Relaxed	.061	.297	.009	.873	-.176**	.003
Calm	.037	.532	-.047	.422	-.189**	.001
Content	.078	.183	-.006	.921	-.195**	<.001
Instability						
(MSSD)						
Energetic	.030	.614	-.064	.280	-.268**	<.001
Enthusiastic	.054	.362	-.070	.237	-.175**	.003
Cheerful	.046	.434	-.045	.447	-.180**	.002
Relaxed	.049	.403	.018	.767	-.153**	.009
Calm	.054	.358	-.014	.807	-.148*	.012
Content	.094	.108	.042	.479	-.145*	.013

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Regression Analysis

For all the unique emotions and their dynamics, a regression analysis was performed.

In line with the correlational analyses, these showed no significant associations (see Table 3).

The hypothesis was:

When specific positive emotions (energetic, enthusiastic, cheerful, relaxed, calm, content) in relation with childhood physical or sexual abuse are measured, results will show different associations regarding intensity, variability and instability, opposed to when positive affect is measured in two clusters (PAA and PAD)

The hypothesis was partly rejected; the distinct positive emotions and their dynamics showed no significant relationship with sexual or physical abuse. This was also true when positive emotions where clustered, with PAD instability as the one exception (Myroniuk et al., 2024). If anything, the usage of distinct emotions as dependent variables, gained less significant results. In conclusion, the results from the correlational as well as the regression analyses of the current study did not show that using distinct emotions will show fairly different results.

Table 3

Regression Analysis Including Participants of All Ages

	Physical Abuse		Sexual Abuse	
	Standardized Coefficients (β)	p-value	Standardized Coefficients (β)	p-value
Emotion dynamics				
Intensity (M)				
Energetic	-.010	.867	-.062	.290
Enthusiastic	.017	.768	-.061	.302
Cheerful	-.003	.955	-.060	.308
Relaxed	.015	.802	-.061	.298

Calm	.009	.878	-.050	.394
Content	.062	.295	-.054	.363
Variability (SD)				
Energetic	.066	.260	-.089	.130
Enthusiastic	.052	.378	-.051	.385
Cheerful	.055	.351	-.018	.760
Relaxed	.059	.316	.027	.649
Calm	.023	.691	-.023	.695
Content	.052	.374	-.004	.946
Instability (MSSD)				
Energetic	.065	.273	-.077	.190
Enthusiastic	.034	.567	-.046	.432
Cheerful	.054	.356	-.026	.655
Relaxed	.055	.355	.044	.456
Calm	-.016	.781	-.005	.938
Content	.055	.348	.043	.465

The Moderating Role of Age

Before analysing, the current research proposed an exploratory research question on whether age could play a moderating role in the relationship between experiencing physical or sexual abuse in childhood and the experience of positive affect later in life. While the correlational analyses showed positive emotion dynamics are associated with age, age did not play a significant role in the relationship between experiencing physical and sexual abuse and the dynamics of PA emotions. This statement is based on the lack of significant values in each age group (see Table 4). The group including ages 18-29, showed values closer to significance

regarding variability and instability, compared to the regression results when participants of all ages were included. The emotion variables that showed the lowest p-values in this age category were energetic (β= .196, p= .086) and enthusiastic (β=.189, p= .091). However, no results provide substantial evidence to state age plays a role in the relationship between PA and physical or sexual abuse.

Table 4

Regression Analyses Across Different Age Groups

	Physical Abuse						Sexual Abuse					
	Age (18-29)		Age (30-45)		Age (> 45)		Age (18-29)		Age (30-45)		Age (> 45)	
	β	p	β	p	β	p	β	p	β	p	β	p
Emotion dynamics												
Intensity (M)												
Energetic	-.047	.677	.132	.204	-.098	.295	-.130	.246	-.136	.190	-.005	.955
Enthusiastic	.001	992	.084	.419	-.024	.803	-.095	.400	-.131	.207	.000	.999
Cheerful	-.114	.310	.073	.483	-.023	.806	-.149	.184	-.146	.160	.022	.812
Relaxed	.103	.358	.100	.339	-.063	.502	-.056	.620	-.136	.192	-.020	.833
Calm	.025	.826	.129	.216	-.071	.453	-.081	.472	-.065	.535	-.039	.679
Content	.114	.312	.155	.135	-.014	.883	-.115	.306	-.111	.286	.013	.887
Variability (SD)												

Energetic	.192	.086	.065	.536	.058	.541	-.064	.571	-.067	.520	-.085	.367
Enthusiastic	.189	.091	.035	.734	.034	.718	.028	.804	-.010	.926	-.091	.331
Cheerful	.177	.114	-.044	.676	.087	.355	.072	.524	-.025	.813	-.040	.672
Relaxed	.053	.636	.086	.412	.083	.377	-.006	.959	.099	.341	.029	.761
Calm	.089	.428	.040	.700	.019	.841	.021	.855	-.029	.785	-.018	.851
Content	.151	.179	-.055	.597	.101	.281	.074	.514	.064	.540	-.070	.458

Instability

(MSSD)

Energetic	.164	.144	-.005	.965	.107	.254	-.079	.485	-.094	.366	-.032	.733
Enthusiastic	.129	.250	.061	.562	.002	.986	-.051	.651	.011	.918	-.054	.569
Cheerful	.180	.108	.011	.920	.044	.639	-.149	.184	-.021	.840	.006	.946
Relaxed	.028	.803	.093	.371	.074	.433	-.021	.850	.105	.314	.069	.464
Calm	-.026	.816	.006	.957	-.002	.984	.023	.837	-.002	.986	-.003	.973
Content	.157	.162	-.025	.810	.069	.463	.060	.594	.099	.342	.018	.850

Discussion

The goal of this research was to examine whether the experience of physical or sexual abuse in childhood could predict positive affect dynamics later in life. Since most research, examining the impact of childhood adversity, focuses on negative affect (Etter et al., 2013), the current research aimed to fill this gap by emphasizing the role of positive affect. Additionally, previous research by Myroniuk et al. (2024) did not find associations between these types of abuse and activated positive affect and deactivated positive affect. Therefore, the current study replicated the research, but instead of using the clustered emotions, the emotions were uniquely examined. This way, the current study hypothesized to find unique associations between distinct positive emotions (energetic, enthusiastic, cheerful, relaxed,

calm, content) and the examined abuse. Additionally, the role of age in the relation between physical and sexual abuse and positive affect dynamics was examined, since the experience of positive affect is subject to developmental changes (Buecker, 2023; Nook et al.,2018; Reitsema, 2024).

In summary, there was no evidence that the experience of physical or sexual abuse in childhood could predict the intensity, variability, and instability of the distinct positive emotions. Regarding age, the results did show the intensity of some positive emotions increases with age and the variability and instability of all positive emotions decreases with age. However, childhood physical and sexual abuse did both not predict any positive affect dynamics, when looking at different age groups.

Theoretical and Practical Implications

Although some research did find associations between these types of abuse and positive affect (Etter et al., 2013; Banford & Busby, 2019; Dokuz et al., 2022), the current research confirms what Myroniuk et al. (2024) already found; childhood physical and sexual abuse do not appear to impact the experience of positive affect later in life. This also applies when emotions are separately analysed.

Physical abuse

Before drawing conclusions on how to translate these findings into real world implementations, it is important to note abuse types do not exclusively exist on their own. Both sexual and physical abuse show co-occurrences with other types of abuse, with the strongest association between emotional abuse and physical abuse (Myroniuk et al., 2024). Other types of abuse do show an influence on the experienced positive affect later in life (Myroniuk et al., 2024). Therefore, caution is essential when making decisions about treatment solely based on the presence of a single type of abuse. Just because there were no associations found between physical abuse and positive affect dynamics, does not mean

physical abuse has no additional effect paired with other types of abuse. Additionally, of all types of abuse measured in the "HowNutsAreTheDutch" research, people reported the lowest levels of physical abuse (Myroniuk et al., 2024). This means drawing conclusions on the influence of high levels of physical abuse in childhood is risky, since most participants in the current study only reported experiencing low levels.

Myroniuk et al. (2024) propose an explanation as to why it seems childhood physical abuse has little impact on positive emotion dynamics. They suggest, because physical abuse is often more visible than other types of abuse, people experiencing physical abuse will more often receive help and support. Additionally, some research even suggests physical abuse in childhood can result in lower depressive symptoms and can cause positive growth (Jeronimus et al., 2023). This can be explained by the idea that once people grow up and get out of the hurtful situation, they gain a sense of control and feel like their future will be better.

Other research found physical abuse did not predict internalising problems, such as depression, but did cause problematic externalising behaviours like aggression (Zhou & Zhen, 2022). Since the current research did not study these behaviours, it could be beneficial to include them in further research to gain a broader insight into emotional patterns experienced by physical abuse survivors.

Sexual abuse

Previous research found childhood sexual abuse survivors to be more alexithymic than women without these experiences (Marx & Sloan, 2002). This means women that experienced sexual abuse, have a harder time to identify and verbalize their emotions. It is hard to state whether this could have had an influence on the lack of associations in the current study, but the ability to identify one's own emotions is very important in diary studies. Therefore, it is interesting to take alexithymia into account in further research.

Additionally, while sexual abuse was not associated with positive affect dynamics, it

was primarily associated with negative affect dynamics (Myroniuk et al., 2024). That is, negative emotions are influenced by the experience of sexual abuse in childhood, rather than positive emotions. Regarding clinical implementations it might be more beneficial to focus on negative affect dynamics when treating psychopathology deriving from sexual abuse experiences. This is supported by research by Houben et al. (2015) stating negative emotion dynamics are more predictive of psychopathology than positive emotion dynamics.

In sum, while the study's findings showed no associations between childhood physical and sexual abuse and positive affect dynamics, these results contribute to the existing literature by suggesting positive emotions may not be as deeply impacted by abuse as expected.

The Role of Age

In line with results of previous research (Buecker et al., 2023), the current research found the intensity of positive emotions to increase with age. This reflects the idea that positive affect dynamics do follow certain trajectories, possibly based on developmental changes and transitional factors in the different stages of life (Halloran, 2024). In line with research, stating emotion regulation increases over age (Lawton, 2001), the current research found the variability and instability of positive emotions to decrease over age. However, once physical and sexual abuse come into play, these associations diminish. Therefore, it seems age does not play a role in the relation between physical or sexual abuse and positive affect dynamics. An explanation for this might be the positive association between emotion regulation and academic performance (Andrés et al., 2017). Since our sample consisted of mostly highly educated participants, it is likely that most people possess above average emotional regulation strategies, which could obscure age related differences. Additionally, although the current sample had a wide age range, it still consisted of only adults. Adolescence is a period marked by biological changes, which leads to the experiences of

more complex emotions, while emotional regulation strategies are still developing (Young et al., 2019). It might be difficult to obtain young participants that already escaped their abuse, but it could be valuable to gain more insight in emotional dynamics following abuse, during such a critical time period.

Strengths, Limitations and Future directions

Research design

The current research used the data of Van Der Krieke et al. (2015), obtained by pairing a cross-sectional study, including the measurement of childhood abuse, as well as a longitudinal study, in the form of a diary study to track experienced emotions. This multimethod approach helps to gain a detailed understanding of the emotion processes within an individual and the relationship they hold with childhood abuse. The use of a diary study allows to study personal experiences within their natural contexts and therefore increases the ecological validity (Lischetzke, 2014). Additionally, it minimizes the need to retrieve information from memory and it allows to study temporal dynamics. However, participants in the current study only reported their childhood abuse experiences once and their emotions over a 30-day period. In order to gain an even more complete understanding of emotion processes following abuse, future research should assess the variables of the current study over the course of a lifetime.

Participants and Measurements

By using participants recruited by the "HowNutsAreTheDutch" research, the current study was able to use a big participant sample with a wide range of ages, which is beneficial when you seek to explore emotion dynamics across the whole population. However, the participant pool of the current research consisted of predominantly highly educated women. The "HowNutsAreTheDutch" research was an online platform, which aimed to give participant individualized feedback to improve their health (Van Der Krieke et al., 2015).

Research found highly educated people and women rather than men, are more inclined to seek out such platforms and therefore to participate (Van 't Riet et al., 2010). This may have resulted in a selection bias. Additionally, all participants were dutch-speaking and from a WEIRD (Western, Educated, Industrialized, Rich, Democratic) country, which means it is not possible to generalize the results from the current study to populations within different cultures.

While the CTQ questionnaire is found to be a reliable measure (Badenes-Ribera et al., 2024), it is important to consider the retrospective nature of this research method. A study by Langeland et al. (2014) found retrospective self-reports of childhood sexual abuse to be inconsistent across different measurement points. This was especially associated with experiencing low levels of abuse, which is the case in the current study. Additionally, retrospective reports depend on the accessibility of abuse memories during measurement (Coleman et al., 2024). This is not always easy for survivors, because of cognitive strategies that help to avoid recalling stressful experiences. However, a study by Baldwin et al. (2019) showed 56% of adults who retrospectively reported childhood maltreatment, did not have any prospective documentation of the abuse. Therefore, retrospective evidence also has additional value when measuring abuse experiences.

Conclusion

The results of the current research contribute to the existing literature by addressing the idea that clustered emotions could possibly obscure associations between abuse and affect dynamics (Reitsema et al., 2023). However, regarding physical and sexual abuse in relation with positive affect, this is not the case. Therefore, the findings of this research support the notion that childhood sexual and physical abuse do not impact positive affect as much as might be expected. It is valuable to know, in for example clinical settings, that the impact of physical or sexual abuse in childhood on the experience of positive emotions, must not be

overestimated. Nonetheless, it remains important to keep in mind contributing factors, such as co-occurrence of abuse types, the level of abuse intensity and retrospectivity of the measurement methods when interpreting the results. Further research taking this into account could help to form more conclusive implementations.

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Footnotes

[1] The completed version of the physical abuse scale included the items: "I got hit so hard by someone in my family that I had to see a doctor or go to the hospital", "People in my family hit me so hard that it left me with bruises or marks", "I was punished with a belt, a board, a cord, or some other hard object", "I believe that I was physically abused", "I got hit or beaten so badly that it was noticed by someone like a teacher, neighbour, or doctor".

[2] The completed version of the physical abuse scale included the items: "Someone tried to touch me in a sexual way, or tried to make me touch them," "Someone threatened to hurt me or tell lies about me unless I did something sexual with them," "Someone tried to make me do sexual things or watch sexual things," "I believe that I was sexually abused".