Supplementary tables, figures and descriptions for the development and validation of the Weighted Index for Childhood Adverse Conditions

Section 1: Development

1.1. Search Strategy II

With help from a librarian, we found useable MesH terms in PubMed to investigate which measurements were used. We used the following terms: "Reproducibility of Results" "Epidemiological Studies" "Surveys and Questionnaires" "Epidemiological Measurements" this was then combined with the exposure as "Adverse Childhood Experiences [MesH]"," Childhood conditions", "childhood terms"," Growing up" and "upbringing". The search was built in several narrower searches, when above a thousand hits, the first two hundred was included. The searches were conducted from February 2021 to April 2021. The strategy is shown in Fig. S1.

Inclusion criteria was: "measure descriptions", "English or Scandinavian language", and articles published after the included reviews (2016/18). The aim was to identify possible outcome measurements for our hypotheses and validation process. Therefore, the search was narrowed to include a somewhat homogeny population. We excluded specific population samples at high risk, such as LGBTQ+, and Afro-Americans, we further excluded specific countries, as to barriers in language, and at-risk populations, such as the Appalachian region in USA. We excluded duplicates, emerging in the included reviews to further secure a homogeny population.
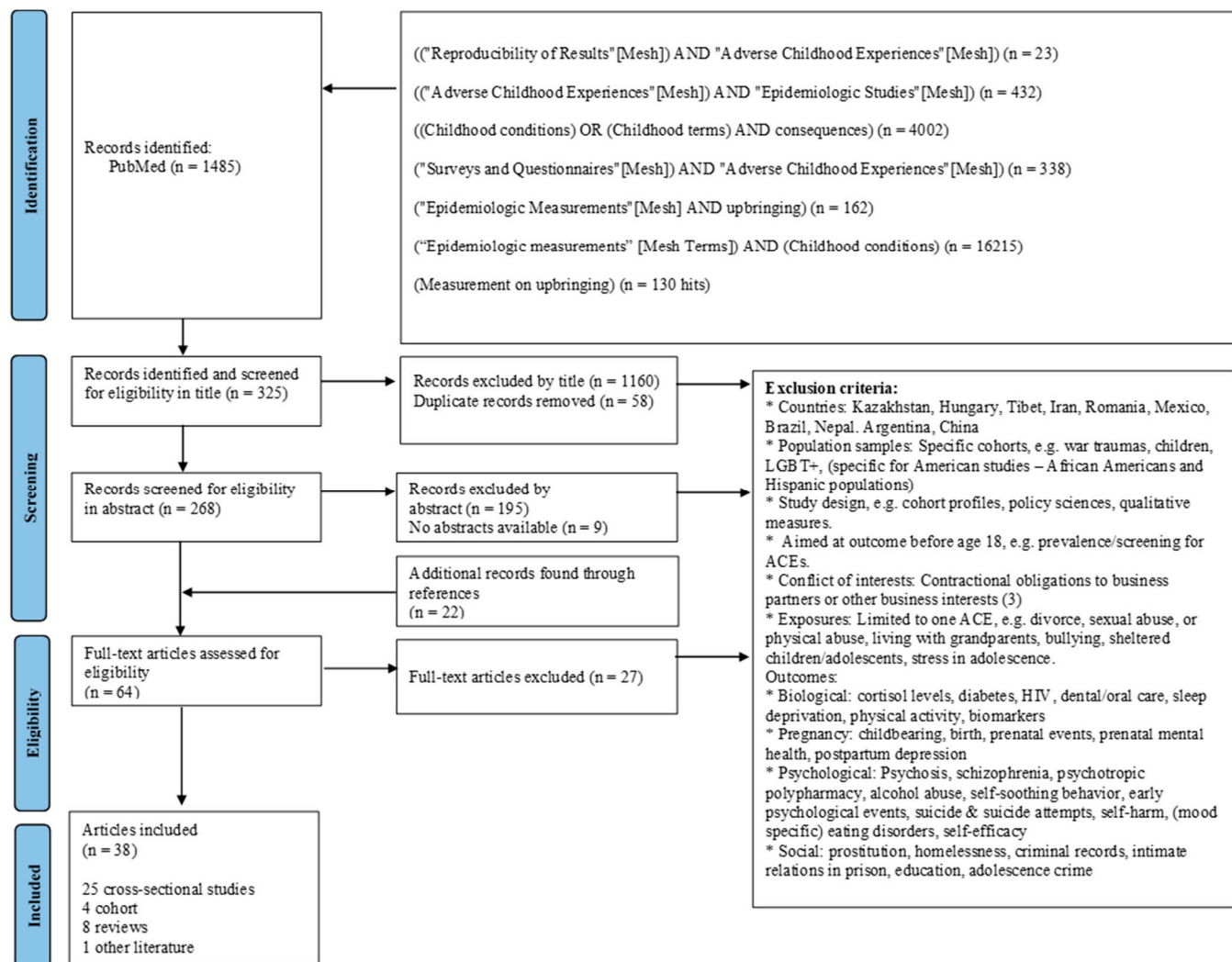
Fig. S1: Flow Chart, Literature search II

Identification	Records identified: PubMed (n = 1485)	(("Reproducibility of Results"[Mesh]) AND "Adverse Childhood Experiences"[Mesh]) (n = 23) (("Adverse Childhood Experiences"[Mesh]) AND "Epidemiologic Studies"[Mesh]) (n = 432) ((Childhood conditions) OR (Childhood terms) AND consequences) (n = 4002) ("Surveys and Questionnaires"[Mesh]) AND "Adverse Childhood Experiences"[Mesh]) (n = 338) ("Epidemiologic Measurements"[Mesh] AND upbringing) (n = 162) ("Epidemiologic measurements" [Mesh Terms]) AND (Childhood conditions) (n = 16215) (Measurement on upbringing) (n = 130 hits)

Figure S1: The flow-chart describes the literature search for the theoretical development of WICAC

1.2. Measure categories

Table S1 show the distribution of items included in the measures. The most common category, when measuring childhood adversities, is household dysfunction, followed by physical abuse, neglect, sexual abuse, emotional abuse, community factors and own injuries and health conditions, bereavement, loss and injury while only CAPA includes natural disasters as well. For other included items, some focus on categories such as performance at school well-being among peers (CAPA (1), CCA (2), CLES (3), QUIC (4)) bullying (CAPA (1), CCA (2), JVQ-R2 (5), KID-SAVE (6) MACE (7)) and loneliness (CATS (8), CCA (2)). For the included categories, there were some variations in the form of the questions, and which questions were included. For household dysfunction there were items of parental substance abuse (ACE (9), CAPA (1), CATS (8), CCA (2)) parental mental illness (ACE (9),

CAPA (1), CCA (2)) witnessing violence against other family members e.g. siblings (CAPA (1), CATS (8), CCA (2), MACE (7)) and parental unemployment. (CCA (2), CLES (3))

According to own injuries and health conditions, some measures also included mental health and symptoms (CAPA (1), CCA (2)), while only 2 measures included unwanted, or teenage, pregnancy (CAPA (1), CLES (3))

While the CTQ-SF (10) and MACE (7) measures divided neglect into physical and emotional, QUIC (4) only measured emotional neglect. Only the JVQ-R2 (5) includes partner violence in physical abuse.

Table S1: Categorical distribution of adversities according to included items in WICAC

Table S1	Categorical distribution of adversities according to the WICAC									
Measures	**Adversities**									
	Abuse									
	Physical	Sexual	Emotional	Neglect	Household Dysfunction	Community factors	Disasters	Bereavement, loss & injury	Own injuries and health	Other
ACE	✓	✓	✓	✓	✓					
CAPA	✓	✓			✓	✓	✓	✓	✓	✓
CATS	✓	✓	✓	✓	✓					✓
CCA	✓				✓	✓			✓	✓
CLES					✓			✓	✓	✓
CTQ-SF	✓	✓	✓	✓						
JVQ-R2	✓	✓	✓	✓	✓	✓		✓		✓
KID-SAVE					✓	✓			✓	✓
MACE	✓	✓	✓	✓	✓					✓
QUIC				✓	✓					✓
Table 3: Abbreviations: Adverse Childhood Experiences (ACE) Study, The Child and Adolescent Psychiatric Measure (CAPA), The Child Abuse and Trauma Scale (CATS), Cumulative Childhood Adversity (CCA), Cumulative Lifetime Adversity Measure (CLAM), Coddington Life Events Scale (CLES) Childhood Trauma Questionnaire, Short										

form (CTQ-SF), The Juvenile Victimization Questionnaire retrospective (JVQ-R2), KID-Screen for Adolescent Violence Exposure (KID-SAVE), The Maltreatment and Abuse Chronology of Exposure (MACE), The Questionnaire of Unpredictability in Childhood (QUIC), The Weighted Index for Childhood Adverse Conditions

1.3. Discussions on selection on weighting on each item

1.3.1. Abuse: In this category, we have included, physical abuse, sexual abuse, and emotional abuse. Contradicting the ACE-study (9), the items measuring physical abuse were divided to "Were physically attacked or insulted" and "Being physically harmed as a child (hit hard enough to leave a bruise or mark, kicked, burned etc.)". As studies suggest that being sexual abused is a higher risk factor for negative/poor health-related outcomes in adulthood than physical abuse (11, 12) we agreed to adjust the weight in the latter two parameters on the category of physical abuse to 2, as we defined a physical attack or assault as more common, e.g. the basic principle 2. Differently, from the ACE-study, we have included partner violence, as recommended by Afifi et al. 2020 (13).

The sexual abuse category is divided into what we can assume to be groping and rape. Studies suggest a minor difference in the severity and risk of these outcomes: We agreed the difference was not large enough to divide the weigh for the category, therefore we weighted factor 3 for all sexual abuse items, as all experts agreed that patients with a history of sexual abuse is often more trauma influenced.

For emotional abuse we included "Been shamed, embarrassed or told repeatedly that you are "no good", which is much like the item from the ACE-study. We further included "Been coerced with threats of harm to yourself or your family", as this item describes emotional stress both inside and outside the family. We weighted both items 2 according to estimates for emotional abuse in the literature, as well as to our 3. basic principal regarding "Been shamed,

embarrassed or told repeatedly that you are no good", as this item both can include bullying as well as a single experience of humiliation.

1.3.2. Neglect: We included the item "Were neglected (as a child) by your parent(s)" which is very much like the measure from the ACE-study and weights 2 according to existent literature (2), as well as our third basic principle as subjective experiences of neglect can vary. Further, we added "Experienced serious financial difficulties (i.e. no money for food or shelter)" as living in poverty is a very vital condition while growing up, as pointed out by Afifi et al. (2020). Further, an English study suggests that child-poverty is a major factor for adverse childhood experiences, as it can explain the health outcomes in some areas of England (14). However, as this was an ecological study, and as we discussed how poverty can be a general circumstance while growing up, we estimated the weigh for this item as 1.

1.3.3. Household Dysfunctions: Contradicting the ACE-study we included violence against both parents, and not just toward the motherly figure (9). We weighted this item 2, according to physical and emotional abuse. We included parents' divorce and weighted it 1 in line with Heidinger et al. (2020). Forced separation from family includes being in foster care, parental incarceration etc. as well as it can be very traumatic being removed from your family, we weighted the item 2 according to our third basic principle, as it can be a benefit for some children. Afifi et al. (2020) also recommends including items such as foster care and long-term separation from family due to deployment or immigration, which our item includes as well.

1.3.4. Community Factors: The ACE-study does not have any items describing community factors (9). As living in dangerous housing or neighborhood is closely associated with poverty, we weighted this item 1 as well. As for discrimination we weighted the item a factor 1 according to our second basic principle. As recommended by Afifi et al. (2020), we included items for witnessing and experiencing violence in the community. We weighted disaster 1, as

it is witnessed, and not experienced, the item for witnessed someone being injured or killed 2, according to our third basic principle.

1.3.5. Disaster: By including both natural disasters and war combat, we sought to cover the term of disaster, as a tragedy that man cannot control, in accordance with The Child and Adolescent Psychiatric Assessment (1). We weighted the item of natural disasters 2 according to our third basic principle, while we weighted combat in war a 3, considering children participating in combat.

1.3.6. Bereavement, loss, and injuries: Both parental death and death of a sibling are items recommended by Afifi et al. (2020), as experiencing a loss in your nearest family, or close friend, is proven to be a traumatic event, but not included in the terms of ACE, however, these events are definitely adverse conditions while growing up. Deaths by homicide or suicide and witnessed a family member being injured or killed rates 3, as we believe these events to be more traumatic than the loss under normal circumstances. Serious illness is rated 1, as it is not a deadly illness. Witnessed a family member being injured or killed rates to according to our third basic principle. The loss of a parent of sibling all rates 3, as these deaths influences the conditions while growing up in a more personal level than the death of a friend, which rates 2 according to the understanding of death among peers from a young age.

1.3.7. Own injuries and health conditions: Afifi et al. (2020), recommends including major childhood illness as an adversity in childhood, while teenage pregnancy has been found as being an adverse condition as well (1, 3). We discussed this category in reference to the purpose of the index, as if it would be used in research, we could adjust for some illnesses, which would introduce bias in the conducted research, however, we included the item, as it is an important condition for growing up, according to our construct. We rated unwanted pregnancy 1, as several members of the expert committee have experienced a lack of understanding and regret

in individuals who experienced an abortion at a young age. We discussed that an unwanted pregnancy which resulted in a life born baby, also is dependable of other cultural dependencies which will show in other items as well. Suffering an illness or accident weighted a factor 2 conferring to Heidinger et al. (2019).

2. Validation

This section investigates additional descriptive analysis of missing values, descriptive analysis of WICAC according to specifics for all items and results for the sensitivity analyses.

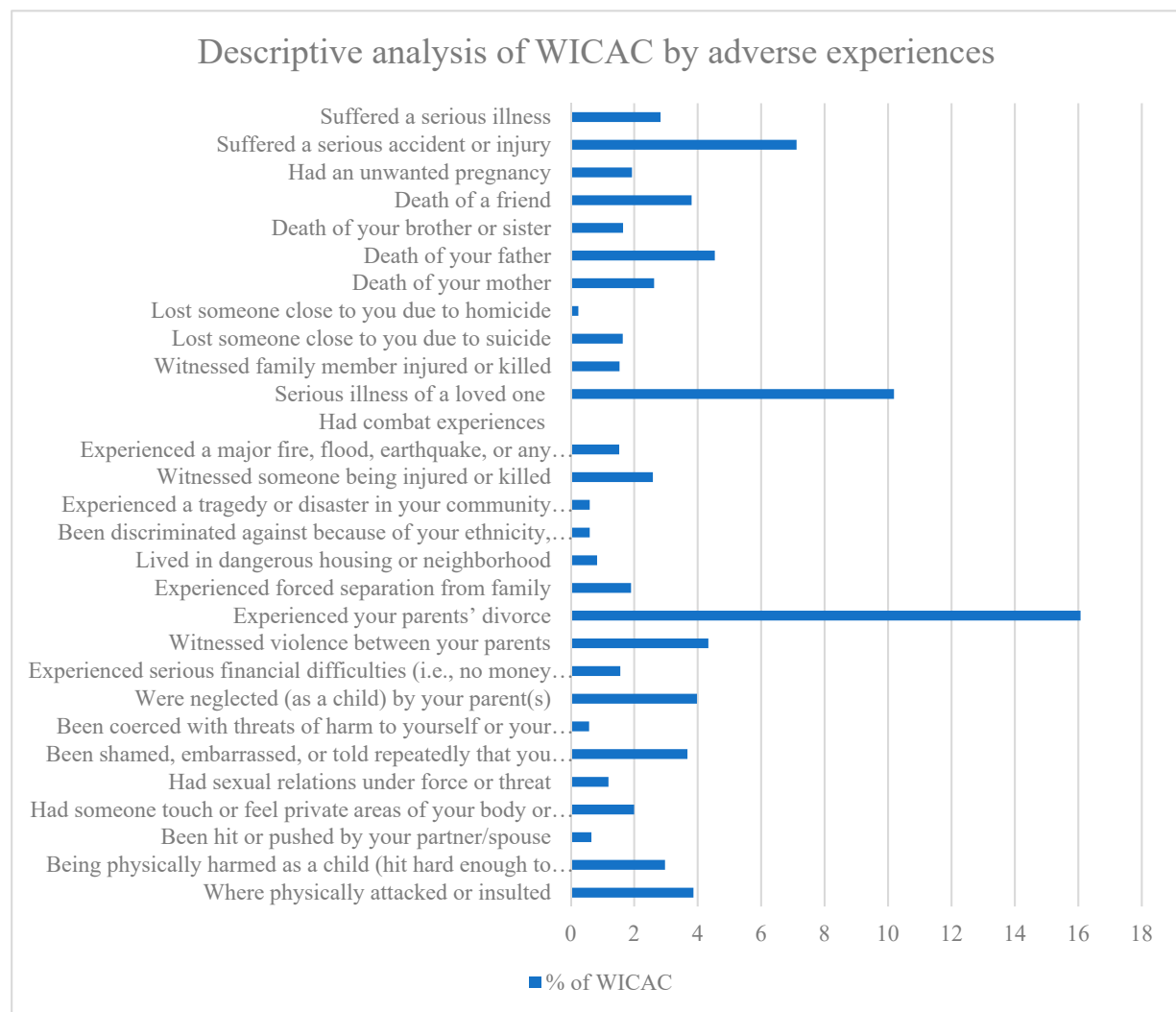**Fig. S2. Descriptive analysis of WICAC by adverse experiences**

Descriptive analysis of WICAC by adverse experiences

Table S2: Descriptive analysis of WICAC by adverse experiences

Tabel S2	Descriptive analysis of WICAC by adverse experiences			
Categories	**Item**	**WICAC characteristics**		
		% (N)	**Median (IQR)**	**Min; Max**
WICAC		***84.88 (6360)***		***0-46***
Abuse; Physical	Where physically attacked or insulted	3.87 (246)	5.5 (2-11)	1-46
	Being physically harmed as a child (hit hard enough to leave a bruise or mark, kicked, burned etc.)	2.97 (189)	9 (5-16)	2-46
	Been hit or pushed by your partner/spouse	0.65 (41)	10 (5-14)	2-30
Abuse; Sexual	Had someone touch or feel private areas of your body or touched/felt anothers' private areas under force or threat	2.00 (127)	10 (6-18)	3-43
	Had sexual relations under force or threat	1.19 (76)	11 (6-23.5)	3-43
Abuse; Emotional	Been shamed, embarrassed, or told repeatedly that you are "no good"	3.68 (234)	9 (5-14)	2-46
	Been coerced with threats of harm to yourself or your family	0.58 (37)	11 (7-19)	3-46

		3.98 (253)	10 (7-16)	2-46
Neglect	Were neglected (as a child) by your parent(s)	3.98 (253)	10 (7-16)	2-46
	Experienced serious financial difficulties (i.e., no money for food or shelter)	1.56 (99)	7 (3-14)	1-46
Household dysfunction	Witnessed violence between your parents	4.34 (276)	7 (4-13)	2-46
	Experienced your parents' divorce	16.07 (1022)	3 (1-5)	1-46
	Experienced forced separation from family	1.90 (121)	8 (5-15)	2-46
Community Factors	Lived in dangerous housing or neighborhood	0.83 (53)	8 (4-14)	1-46
	Been discriminated against because of your ethnicity, religious background, or sexual orientation	0.60 (38)	6 (3-12)	1-28
	Experienced a tragedy or disaster in your community caused by people (a shooting, bombing, etc.)	0.60 (39)	7 (3-10)	2-28
	Witnessed someone being injured or killed	2.59 (165)	5 (2-8)	2-32
Disaster	Experienced a major fire, flood, earthquake, or any natural disaster in your community	1.53 (97)	4 (2-8)	2-32
	Had combat experiences	<5	6 (-)	6-6
Bereavement, loss and injuries	Serious illness of a loved one	10.19 (648)	3 (2-6)	1-31
	Witnessed family member injured or killed	1.54 (98)	6 (3-10)	2-46
	Lost someone close to you due to suicide	1.64 (104)	7 (4.5-9)	3-46
	Lost someone close to you due to homicide	0.24 (15)	8 (5-15)	3-46
	Death of your mother	2.63 (167)	5 (3-7)	3-22
	Death of your father	4.54 (289)	5 (3-7)	3-33
	Death of your brother or sister	1.65 (105)	5 (3-9)	3-31
	Death of a friend	3.81 (242)	4 (2-7)	2-28
Own injuries and health conditions	Had an unwanted pregnancy	1.93 (123)	3 (1-6)	1-43
	Suffered a serious accident or injury	7.1 (453)	3 (2-6)	2-43
	Suffered a serious illness	2.83 (180)	6 (4-8)	2-30

Table S2: Abbreviations IQR=Interquartile range

Table S3: Missing characteristics divided on index-categories

Table S3	Missing Characteristics divided in index-categories					
Variabel	**Total WICAC (N:6360)**	**No Adversity (N:3383)**	**Low Adversity (N: 1293)**	**Moderate Adversity (N:1261)**	**Severe Adversity (291)**	**Very severe adversity (N: 132)**
Cardiovascular disease % (N)	1.19 (76)	1.4 (49)*	0.8 (10)*	0.7 (9)	2.1 (6)*	1.5 (2)*
Cancer % (N)	1.43 (91)	1.6 (55)	1.1 (14)	1.0 (13)	2.4 (7)*	1.5 (2)*
Poor Health % (N)	0.46 (29)	0.5 (17)	0.3 (4)	0.5 (6)	0.7 (2)	-
Backpain % (N)	0.80 (51)	0.8 (28)	0.9 (11)	0.8 (10)	0.7 (2)	-

Obesity % (N)		0.1 (3)	-	0.1 (1)	-	-
Anxiety % (N)	1.29 (82)	1.5 (51)*	0.9 (11)	0.9 (11)	2.4 (7)	1.5 (2)
Depression % (N)	1.18 (75)	1.4 (48)	0.9 (11)	0.7 (9)	1.7 (5)	1.5 (2)
Low vitality % (N)	0.74 (47)	0.8 (26)	0.7 (9)	0.6 (8)	1.4 (4)	-
Low social status <4 % (N)	0.97 (62)	1.1 (38)*	0.9 (11)*	0.7 (9)	1.4 (4)*	-
Low Education % (N)		0.3 (11)	0.2 (3)	0.2 (2)	0.3 (1)	0.8 (1)
Daily smoking % (N)	0.27 (17)	0.3 (9)	0.3 (4)	0.2 (3)	0.3 (1)	-
Heavy drinking % (N)	5.02 (319)*	4.2 (141)*	5.0 (65)*	6.3 (80)*	8.6 (25)*	6.1 (8)*
Alcohol addiction % (N)	5.17 (329)*	4.3 (145)*	5.2 (67)*	6.5 (82)*	8.9 (26)*	6.8 (9)*

Table S3: Heavy drinking is measured as >35 units pr. week. Addiction is measured as >1 on the CAGE-score.
* Increases the prevalence above 20 %.

Table S4: RR & MD for WICAC and missing indices

Table S4				RR & Mean Differences between WICAC 50 % answered and >1 answered					
Cases Index Categories	WICAC			50 % answered			>= 1 answered		
	RR/MD	95 % CI	P-Value	RR/MD	95 % CI	P-Value	RR/MD	95 % CI	P-Value
Biological outcomes:									
Cardiovascular Disease*, RR WICAC N=6104, 50 % Answered N=7023, >=1 answered N=7070									
Low	1.06	(0.75-1.51)	0.727	1.06	(0.77-1.45)	0.740	1.07	(0.78-1.46)	0.673
Moderate	0.90	(0.64-1.27)	0.545	0.98	(0.72-1.32)	0.884	0.96	(0.71-1.30)	0.800
Severe	1.65	(0.89-2.68)	0.072	1.57	(0.94-2.61)	0.084	1.56	(0.94-2.59)	0.089
Very Severe	1.09	(0.42-2.82)	0.864	0.92	(0.35-2.40)	0.868	0.92	(0.35-2.40)	0.866
Cancer*, RR WICAC N=6089, 50 % Answered N=7011, >=1 answered N=7059									
Low	1.05	(0.81-1.36)	0.714	1.05	(0.83-1.32)	0.711	1.04	(0.83-1.32)	0.714
Moderate	1.20	(0.95-1.52)	0.116	1.16	(0.93-1.43)	0.189	1.14	(0.92-1.41)	0.240
Severe	1.23	(0.77-1.98)	0.383	1.28	(0.83-1.95)	0.261	1.26	(0.82-1.92)	0.291
Very Severe	0.88	(0.41-1.91)	0.745	0.96	(0.49-1.87)	0.896	0.95	(0.48-1.86)	0.878
Poor Health, RR WICAC N=6153, 50 % Answered N=7088, >=1 answered N=7137									
Low	1.06	(0.84-1.34)	0.613	1.11	(0.90-1.37)	0.318	1.13	(0.92-1.39)	0.228
Moderate	1.44	(1.20-1.72)	<0.0001	1.41	(1.18-1.69)	<0.0001	1.43	(1.20-1.71)	<0.0001
Severe	2.46	(1.97-3.08)	<0.0001	2.51	(1.98-3.17)	<0.0001	2.51	(1.98-3.18)	<0.0001
Very Severe	2.16	(1.83-2.91)	<0.0001	2.28	(1.68-3.10)	<0.0001	2.31	(1.70-3.12)	<0.0001
Backpain, RR WICAC N=6119, 50 % Answered N=7045, >=1 answered N=7093									
Low	1.13	(1.01-1.26)	0.036	1.10	(1.00-1.22)	0.057	1.11	(1.00-1.23)	0.042
Moderate	1.14	(1.02-1.27)	0.020	1.15	(1.04-1.27)	0.006	1.15	(1.04-1.27)	0.005
Severe	1.33	(1.11-1.58)	0.002	1.30	(1.10-1.53)	0.002	1.31	(1.11-1.54)	0.001
Very Severe	1.45	(1.19-1.77)	>0.001	1.53	(1.26-1.86)	<0.0001	1.54	(1.27-1.86)	<0.0001
BMI; kg/m2, MD WICAC N=6164, 50 % Answered N=7100, >=1 answered N=7149									
Low	0.121	(-0.176-(-0.417))	0.425	0.159	(-0.117-0.436)	0.258	0.146	(-0.130-0.422)	0.299
Moderate	0.506	(0.209-0.803)	0.001	0.453	(0.176-0.731)	0.001	0.437	(0.161-0.713)	0.002
Severe	0.765	(0.210-1.320)	0.007	0.761	(0.246-1.276)	0.004	0.771	(0.257-1.285)	0.003
Very Severe	0.628	(-0.167-1.424)	0.122	0.534	(-0.190-1.259)	0.148	0.523	(-0.201-1.248)	0.157
Obesity, RR WICAC N=6164, 50 % Answered N=7100, >=1 answered N=7149									

Low	1.06	(0.91-1.23)	0.444	1.09	(0.95-1.25)	0.210	1.09	(0.95-1.25)	0.195
Moderate	1.16	(1.00-1.33)	0.043	1.14	(1.00-1.30)	0.050	1.14	(1.00-1.30)	0.053
Severe	1.14	(0.87-1.49)	0.347	1.18	(0.92-1.51)	0.189	1.20	(0.94-1.53)	0.153
Very Severe	1.13	(0.77-1.66)	0.529	1.08	(0.75-1.55)	0.692	1.07	(0.75-1.55)	0.697

Psychological outcomes

Anxiety, RR
WICAC N=6103, 50 % Answered N=7025 >=1 answered N=7072

Low	1.16	(0.85-1.56)	0.347	1.12	(0.84-1.50)	0.441	1.14	(0.86-1.53)	0.363
Moderate	1.15	(0.86-1.54)	0.353	1.21	(0.91-1.59)	0.187	1.22	(0.92-1.61)	0.162
Severe	2.49	(1.70-3.66)	<0.0001	2.35	(1.64-3.36)	<0.0001	2.35	(1.64-3.37)	<0.0001
Very Severe	3.32	(2.32-4.74)	<0.0001	3.01	(2.06-4.41)	<0.0001	3.03	(2.07-4.44)	<0.0001

Depression, RR
WICAC N=6109, 50 % Answered N=7031 >=1 answered N=7078

Low	1.23	(1.03-1.47)	0.021	***1.20	(1.01-1.42)	0.035	***1.21	(1.02-1.43)	0.027
Moderate	1.28	(1.07-1.52)	0.005	***1.37	(1.17-1.61)	<0.0001	***1.40	(1.19-1.64)	<0.0001
Severe	1.95	(1.52-2.50)	<0.0001	***1.99	(1.58-2.50)	<0.0001	***2.02	(1.61-2.53)	<0.0001
Very Severe	2.49	(1.97-3.13)	<0.0001	***2.82	(2.35-3.40)	<0.0001	***2.85	(2.37-3.43)	<0.0001

Low Vitality, R
WICAC N=6136, 50 % Answered N=7067 >=1 answered N=7115

Low	0.94	(0.81-1.09)	0.440	0.94	(0.82-1.08)	0.413	0.94	(0.82-1.08)	0.408
Moderate	1.06	(0.93-1.22)	0.381	1.11	(0.98-1.26)	0.106	1.11	(0.98-1.26)	0.103
Severe	1.40	(1.14-1.71)	0.001	1.56	(1.31-1.86)	<0.0001	1.56	(1.31-1.86)	<0.0001
Very Severe	1.75	(1.40-2.17)	<0.0001	1.88	(1.58-2.24)	<0.0001	1.88	(1.57-2.24)	<0.0001

Behavioral outcomes:

Daily smoking, RR
WICAC N=6165, 50 % Answered N=7102, >=1 answered N=7151

Low	1.08	(1.01-1.16)	0.026	1.08	(1.01-1.15)	0.016	1.08	(1.02-1.15)	0.013
Moderate	1.18	(1.10-1.25)	<0.0001	1.17	(1.11-1.24)	<0.0001	1.17	(1.10-1.24)	<0.0001
Severe	1.28	(1.15-2.42)	<0.0001	1.30	(1.18-1.44)	<0.0001	1.30	(1.18-1.43)	<0.0001
Very Severe	1.31	(1.13-1.51)	<0.0001	1.34	(1.17-1.52)	<0.0001	1.34	(1.18-1.52)	<0.0001

Smoking, amount, MD
WICAC N=2959, 50 % Answered N=3449 >=1 answered N=3471

Low	0.247	(-0.680-1.175)	0.601	0.406	(-0.449-1.262)	0.352	0.387	(-0.465-1.239)	0.373
Moderate	1.904	(1.014-2.793)	<0.0001	1.998	(1.175-2.822)	<0.0001	2.049	(1.229-2.868)	<0.0001
Severe	2.373	(0.768-3.978)	0.004	2.350	(0.882-3.818)	0.002	2.356	(0.890-3.822)	0.002
Very Severe	3.153	(0.896-5.409)	0.006	2.808	(0.775-4.841)	0.007	2.820	(0.790-4.850)	0.006

Heavy Drinking, RR
WICAC N=5872, 50 % Answered N=6756 >=1 answered N=6797

Low	1.11	(0.64-1.89)	0.716	1.08	(0.65-1.80)	0.758	1.08	(0.65-1.79)	0.765
Moderate	1.11	(0.68-1.83)	0.667	1.15	(0.73-1.82)	0.540	1.20	(0.76-1.88)	0.434
Severe	1.57	(0.64-3.85)	0.325	1.46	(0.59-3.58)	0.409	1.46	(0.60-3.58)	0.409
Very Severe	4.09	(1.85-9.04)	<0.0001	4.36	(2.07-9.10)	<0.0001	4.39	(2.08-9.27)	<0.0001

Alcohol addiction RR
WICAC N=5863, 50 % Answered N=6745 >=1 answered N=6789

Low	0.93	(0.70-1.24)	0.613	0.96	(0.74-1.25)	0.762	0.96	(0.73-1.25)	0.743
Moderate	1.03	(0.78-1.35)	0.847	1.08	(0.84-1.39)	0.543	1.09	(0.85-1.40)	0.503
Severe	1.64	(1.10-2.46)	0.016	1.59	(1.08-2.33)	0.018	1.59	(1.08-2.34)	0.018
Very Severe	1.82	(1.05-3.16)	0.032	1.77	(1.06-2.96)	0.029	1.77	(1.06-2.96)	0.029

Alcohol consumption, MD
WICAC N=5872, 50 % Answered N=6756 >=1 answered N=6797

Low	-0.124	(-0.680-0.432)	0.663	-0.102	(-0.623-0.419)	0.701	-0.106	(-0.626-0.413)	0.689
Moderate	0.309	(-0.250-0.868)	0.278	0.155	(-0.369-0.680)	0.561	0.195	(-0.327-0.718)	0.463
Severe	0.622	(-0.437-1.680)	0.250	0.342	(-0.644-1.328)	0.497	0.344	(-0.642-1.330)	0.494
Very Severe	1.606	(0.103-3.109)	0.036	1.053	(-0.312-2.421)	0.131	1.061	(-0.306-2.428)	0.128

Social outcomes:

Social Status**, MD
WICAC N=6297, 50 % Answered N=7271 >=1 answered N=7323

Low	-0.019	(-0.109-0.071)	0.680	-0.028	(-0.113-0.056)	0.510	-0.031	(-0.115-0.054)	0.478
Moderate	-0.211	(-0.301-(-0.121)	<0.0001	-0.188	(-0.273-(-0.103)	<0.0001	-0.191	(-0.275-(-0.106))	<0.0001
Severe	-0.353	(-0.520-(-0.186)	<0.0001	-0.381	(-0.537-(-0.225))	<0.0001	-0.381	(-0.537-(-0.225))	<0.0001
Very Severe	-0.481	(-0.721-(-0.241)	<0.0001	-0.520	(-0.740-(-0.299))	<0.0001	-0.520	(-0.740-(-0.299))	<0.0001

Low Social Status**, RR
WICAC N=6298, 50 % Answered N=7272 >=1 answered N=7224,

Low	1.24	(0.80-1.91)	0.337	1.05	(0.70-1.58)	0.807	0.98	(0.64-1.49)	0.914
Moderate	1.80	(1.21-2.68)	0.003	1.64	(1.14-2.35)	0.007	1.60	(1.11-2.30)	0.012

Severe	1.92	(1.03-3.56)	0.039	2.01	(1.18-3.44)	0.011	1.85	(1.09-3.12)	0.022
Very Severe	2.79	(1.36-5.72)	0.005	2.89	(1.56-5.33)	0.001	2.82	(1.63-4.86)	<0.0001

Low Education**, RR
WICAC N=6342, 50 % Answered N=7325 >=1 answered N=7378

Low	1.09	(0.98-1.20)	0.097	1.08	(0.98-1.19)	0.094	1.08	(0.98-1.19)	0.102
Moderate	1.19	(1.07-1.31)	0.001	1.16	(1.06-1.27)	0.002	1.16	(1.06-1.27)	0.002
Severe	1.12	(0.94-1.33)	0.191	1.14	(0.97-1.32)	0.110	1.13	(0.97-1.32)	0.118
Very Severe	1.27	(1.03-1.57)	0.024	1.30	(1.07-1.56)	0.006	1.30	(1.07-1.56)	0.007

Discriminative validation

Handgrip strength, MD
WICAC N=6333, 50 % Answered N=7075, >=1 answered N=7124

Low	0.081	(-0.863-1.025)	0.866	-0.000	(-0.888-0.889)	0.999	-0.012	(-0.874-0.898)	0.979
Moderate	-0.458	(-1.402-0.486)	0.342	-0.613	(-1.505-0.278)	0.177	-0.645	(-1.532-0.241)	0.154
Severe	-1.282	(-3.048-0.485)	0.155	-1.495	(-3.154-0.164)	0.077	-1.539	(-3.194-0.116)	0.068
Very Severe	-2.108	(-4.643-0.428)	0.103	-1.574	(-3.906-0.757)	0.186	-1.575	(-3.904-0.734)	0.185

Table 9: Adjusted results: Age at inclusion, sex, social status, education. *Further adjusted for Smoking, BMI. **Only adjusted for age at inclusion and sex ***confounding variable for social status is categorized with 1-2,3,4,5,6,7,8,9,10 due to overfitting in analysis.
Abbreviations: RR: Risk Ratio, MD: Mean Difference in correlations, LA: Low Adversity, MA: Moderate Adversity, SA: Severe Adversity, VSA: Very Severe Adversity
All RR and MD is according to reference group=No adversity.

Table S5: Cross-table of WICAC and an unweighted index

Unweighted Index	WICAC					
	No adversity	Low adversity	Moderate Adversity	Severe Adversity	Very Severe Adversity	Total
No adversity	3383	-	-	-	-	3383
Low adversity (1)	-	1206	358	-	-	1564
Moderate adversity (2-3)	-	87	836	112	3	1083
Severe adversity (4-6)	-	-	67	169	63	299
Very Severe adversity (>6)	-	-	-	10	66	76
Total	3383	1293	1261	291	132	6360

Table S5 shows the distribution on WICAC in the unweighted index

Table S6: RR & MD for WICAC and the unweighted measure

Table S6	RR & Mean Differences between WICAC and an unweighted measure					
Cases	**WICAC**			**Unweighted Index**		
Index Categories	**RR/MD**	**95 % CI**	**P-Value**	**RR/MD**	**95 % CI**	**P-Value**
Biological outcomes:						
Cardiovascular Disease*, RR, N=6104						
Low	1.06	(0.75-1.51)	0.727	0.96	(0.70-1.32)	0.796
Moderate	0.90	(0.64-1.27)	0.545	1.08	(0.74-1.57)	0.689
Severe	1.65	(0.89-2.68)	0.072	1.26	(0.67-2.38)	0.471

Very Severe	1.09	(0.42-2.82)	0.864	1.45	(0.49-4.25)	0.501
Cancer*, RR, N=6089						
Low	1.05	(0.81-1.36)	0.714	1.00	(0.79-1.26)	0.994
Moderate	1.20	(0.95-1.52)	0.116	1.32	(1.02-1.70)	0.036
Severe	1.23	(0.77-1.98)	0.383	1.33	(0.85-2.07)	0.220
Very Severe	0.88	(0.41-1.91)	0.745	0.94	(0.32-2.74)	0.921
Poor Health, RR, N=6153						
Low	1.06	(0.84-1.34)	0.613	1.13	(0.92-1.39)	0.240
Moderate	1.44	(1.20-1.72)	<0.0001	1.57	(1.28-1.93)	<0.0001
Severe	2.46	(1.97-3.08)	<0.0001	2.13	(1.62-2.79)	<0.0001
Very Severe	2.16	(1.83-2.91)	<0.0001	2.39	(1.51-3.78)	<0.0001
Backpain, RR, N=6119						
Low	1.13	(1.01-1.26)	0.036	1.15	(1.04-1.28)	0.006
Moderate	1.14	(1.02-1.27)	0.020	1.06	(0.94-1.20)	0.347
Severe	1.33	(1.11-1.58)	0.002	1.48	(1.26-1.73)	<0.0001
Very Severe	1.45	(1.19-1.77)	<0.001	1.57	(1.20-2.05)	0.001
BMI; kg/m2, MD, N=6164						
Low	0.121	(-0.176-(-0.417))	0.425	0.173	(-0.101-0.449)	0.215
Moderate	0.506	(0.209-0.803)	0.001	0.485	(0.163-0.807)	0.003
Severe	0.765	(0.210-1.320)	0.007	1.131	(0.585-1.677)	<0.0001
Very Severe	0.628	(-0.167-1.424)	0.122	0.084	(-0.953-1.121)	0.874
Obesity, RR, N=6164						
Low	1.06	(0.91-1.23)	0.444	1.06	(0.92-1.21)	0.440
Moderate	1.16	(1.00-1.33)	0.043	1.16	(0.99-1.35)	0.064
Severe	1.14	(0.87-1.49)	0.347	1.36	(1.06-1.73)	0.014
Very Severe	1.13	(0.77-1.66)	0.529	0.92	(0.52-1.63)	0.777
Psychological outcomes:						
Anxiety, RR, N=6103						
Low	1.16	(0.85-1.56)	0.347	1.07	(0.80-1.44)	0.626
Moderate	1.15	(0.86-1.54)	0.353	1.34	(0.99-1.81)	0.060
Severe	2.49	(1.70-3.66)	<0.0001	2.25	(1.55-3.26)	<0.0001
Very Severe	3.32	(2.32-4.74)	<0.0001	4.23	(2.85-6.27)	<0.0001
Depression, RR, N=6109						
Low	1.23	(1.03-1.47)	0.021	1.18	(0.99-1.39)	0.059
Moderate	1.28	(1.07-1.52)	0.005	1.41	(1.18-1.69)	<0.0001
Severe	1.95	(1.52-2.50)	<0.0001	2.15	(1.76-2.63)	<0.0001
Very Severe	2.49	(1.97-3.13)	<0.0001	2.16	(1.50-3.11)	<0.0001

Low Vitality, RR, N=6136						
Low	0.94	(0.81-1.09)	0.440	0.94	(0.82-1.08)	0.375
Moderate	1.06	(0.93-1.22)	0.381	1.16	(1.01-1.33)	0.040
Severe	1.40	(1.14-1.71)	0.001	1.30	(1.06-1.60)	0.011
Very Severe	1.75	(1.40-2.17)	<0.0001	1.87	(1.45-2.41)	<0.0001
Behavioral outcomes:						
Daily smoking, RR, N=6165						
Low	1.08	(1.01-1.16)	0.026	1.10	(1.03-1.17)	0.003
Moderate	1.18	(1.10-1.25)	<0.0001	1.19	(1.11-1.27)	<0.0001
Severe	1.28	(1.15-2.42)	<0.0001	1.32	(1.19-1.46)	<0.0001
Very Severe	1.31	(1.13-1.51)	<0.0001	1.26	(1.03-1.54)	0.025
Smoking, amount, MD, N=2959						
Low	0.247	(-0.680-1.175)	0.601	0.886	(0.038-1.733)	0.041
Moderate	1.904	(1.014-2.793)	<0.0001	1.604	(0.629-2.581)	0.001
Severe	2.373	(0.768-3.978)	0.004	2.680	(1.106-4.254)	0.001
Very Severe	3.153	(0.896-5.409)	0.006	2.124	(-0.927-5.176)	0.172
Heavy Drinking, RR, N=5872						
Low	1.11	(0.64-1.89)	0.716	1.28	(0.81-2.02)	0.283
Moderate	1.11	(0.68-1.83)	0.667	0.72	(0.37-1.41)	0.345
Severe	1.57	(0.64-3.85)	0.325	2.72	(1.31-5.64)	0.007
Very Severe	4.09	(1.85-9.04)	<0.0001	3.98	(1.56-10.17)	0.004
Alcohol Addiction, RR, N=5863						
Low	0.93	(0.70-1.24)	0.613	0.97	(0.74-1.25)	0.790
Moderate	1.03	(0.78-1.35)	0.847	0.95	(0.70-1.28)	0.734
Severe	1.64	(1.10-2.46)	0.016	2.14	(1.50-3.04)	<0.0001
Very Severe	1.82	(1.05-3.16)	0.032	1.26	(0.54-2.96)	0.590
Alcohol consumption, units pr. week MD, N=5872						
Low	-0.124	(-0.680-0.432)	0.663	0.049	(-0.468-0.565)	0.854
Moderate	0.309	(-0.250-0.868)	0.278	0.011	(-0.594-0.617)	0.971
Severe	0.622	(-0.437-1.680)	0.250	1.553	(0.522-2.584)	0.003
Very Severe	1.606	(0.103-3.109)	0.036	1.389	(-0.593-3.370)	0.169
Social outcomes:						
Social Status** MD, N=6297						
Low	-0.019	(-0.109-0.071)	0.680	-0.077	(-0.160-0.007)	0.072
Moderate	-0.211	(-0.301-(-0.121))	<0.0001	-0.179	(-0.277—0.081)	<0.0001
Severe	-0.353	(-0.520-(-0.186))	<0.0001	-0.386	(-0.551—0.221)	<0.0001
Very Severe	-0.481	(-0.721-(-0.241))	<0.0001	-0.596	(-0.909—0.282)	<0.0001

Low Social Status**, RR, N=6298						
Low	1.24	(0.80-1.91)	0.337	1.33	(0.88-2.00)	0.176
Moderate	1.80	(1.21-2.68)	0.003	1.84	(1.22-2.77)	0.004
Severe	1.92	(1.03-3.56)	0.039	1.92	(1.05-3.50)	0.033
Very Severe	2.79	(1.36-5.72)	0.005	2.71	(1.11-6.60)	0.028
Low Education**, RR, N=6342						
Low	1.09	(0.98-1.20)	0.097	1.11	(1.01-1.23)	0.027
Moderate	1.19	(1.07-1.31)	0.001	1.12	(1.00-1.24)	0.043
Severe	1.12	(0.94-1.33)	0.191	1.28	(1.10-1.48)	0.001
Very Severe	1.27	(1.03-1.57)	0.024	1.39	(1.10-1.75)	0.005
Discriminative validation:						
Handgrip strength, MD, N=6140						
Low	0.081	(-0.863-1.025)	0.866	-0.311	(-1.187-0.564)	0.486
Moderate	-0.458	(-1.402-0.486)	0.342	-0.077	(-1.101-0.947)	0.883
Severe	-1.282	(-3.048-0.485)	0.155	-0.856	(-2.592-0.880)	0.334
Very Severe	-2.108	(-4.643-0.428)	0.103	-3.789	(-7.103—0.476)	0.025

Table S6: Adjusted results: Age at inclusion, sex, social status, education. *Further adjusted for Smoking, BMI. **Only adjusted for age at inclusion and sex

Abbreviations: RR: Risk Ratio, MD: Mean Difference in correlations, LA: Low Adversity, MA: Moderate Adversity, SA: Severe Adversity, VSA: Very Severe Adversity

All RR and MD is according to reference group=No adversity.

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