

E-Risk Study Concept Paper Form

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1. Collaborating researchers

Please note:

Once approved, a formal data use agreement will be required between King's College London and the university or research organisation that employs any collaborator <u>having access to the data</u> if they are <u>not</u> a member of staff, a student or affiliate of King's College London. This needs to be signed by both universities/organisations before data access can be granted.

For projects carried out by a student (e.g., MSc/MA, MPhil/PhD, clinical doctorate), the lead applicant should be the student's supervisor at the same university, and the student should be named as the student collaborator requiring access to the data.

If you have additional collaborators, please name them below and indicate whether they need to have access to the data. It would be common, for instance, for other researchers to see summary results of analyses and act as co-authors on your paper without having access to the data. You will not be permitted to share the dataset except with those indicated in the table as requiring access.

Applicable?	Category	Name	Email address	University/organisation	Needs access to data for analysis?
	Applicant (lead researcher)	Flora Blangis	flora.blang is@kcl.ac.u k	KCL	Yes No
 Applicable Not applicable 	Student collaborator (if data is for their dissertation/thesis)				
 Applicable Not applicable 	E-Risk Sponsor (if applicant is not an E-Risk investigator)	Helen Fisher	helen.2.fis her@kcl.ac .uk	KCL	◯ Yes ◉ No
Are there additional collaborators to add?		YesNo			
If yes, how many additional collaborators would you like to add?			8 🗸		

Category	Name	Email address	University/organisation	Needs access to data for analysis?
Other collaborator #1	Louise Arseneault	louise.arsenea ult@kcl.ac.uk	KCL	◯ Yes ◉ No
Other collaborator #2	er collaborator		KCL / Duke University	◯ Yes ● No
Other collaboratorRachel Latham#3		rachel.latham@k cl.ac.uk	KCL	YesNo
Other collaborator #4	Terrie Moffitt	terrie.moffitt@d uke.edu	KCL / Duke University	◯ Yes ● No
Other collaborator #5	Stefan Sprinckmoller	stefan.sprinckm oller@kcl.ac.uk	KCL	○ Yes ● No
Other collaborator #6	Yichang Wang	yichang.wang@k cl.ac.uk	KCL	○ Yes ● No
Other collaborator #7	ndrea Danese ar @	kcl.ac.uk	CL	Yes No
Other collaborator #8	J. Kathy Xie	kathy.xie@duke. edu	Duke	○ Yes ● No

Applicants: If you would like to continue your application later, please press the "Save and return later" button below. Please copy or write down the Return code provided.

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2. The project proposal

Note: Please provide sufficient detail to enable the committee to review your proposal. Please be as specific as possible about the project aims and analysis methods as once approved this concept paper will be posted publicly and thus will act as a form of pre-registration of your project. Expand boxes as required.

Title of project	Flourishing in early adulthood among victimised children
Background and rationale for project (approx. 300 - 1000 words)	Childhood victimisation, which includes physical, sexual, and emotional abuse, neglect, exposure to domestic violence, and bullying by peers, has lifelong adverse effects including functional impairments in adulthood (Jaffee et al., 2018; Wang et al., 2022). The consequences of childhood victimisation affect multiple domains: social and behavioural functioning (e.g., social connections, involvement in crime, violence) (Malvaso et al., 2018; Romano et al., 2015; Wemmers et al., 2018), economic outcomes (e.g., education, employment) (Currie and Widom, 2010; Jaffee et al., 2018; Romano et al., 2015), physical health (e.g., smoking, alcohol consumption, eating disorders) (Chartier et al., 2009), and psychological well-being (e.g., life satisfaction) (Herrenkohl et al., 2012; Su et al., 2019). This is particularly concerning in early adulthood because outcomes during this developmental stage have a major impact on individuals' health, well-being, and prosperity throughout adult life. Nonetheless, some children appear to fare well after experiencing victimisation (Latham et al., 2023; Yule et al., 2019); but do they exceed expectations and truly flourish?
	Conceptual frameworks of flourishing
	Flourishing has been conceptualised in various ways by different authors. For example, Su et al. described it as encompassing multiple domains, including feelings of happiness, a sense of accomplishment, and having supportive and rewarding relationships (Su et al., 2014). According to Brown et al., well-being (i.e., the state of being or doing well across socio-economic, physical, and psychological dimensions) and performance (i.e., level of functioning) are key components of this concept (Brown et al., 2017). VanderWeele expanded this composite measure to include a broader range of states and outcomes, defining flourishing as encompassing mental and physical health, happiness and life satisfaction, meaning and purpose, character and virtue, and close social relationships (VanderWeele, 2017; VanderWeele et al., 2019). In the "Measuring National Well-being" programme of the UK Office for National Statistics, Allin et al. introduced a conceptual framework incorporating education and skills into the assessment of well-being (Allin and Hand, 2017). Other frameworks have been proposed for measuring child well-being, potentially relevant to our focus on early adulthood in this study before individuals are fully independent of their parents. These frameworks notably highlighted the importance of cognitive ability in assessing well-being (Lippman et al., 2011; Pollard and Lee, 2003).
	Relationship between childhood victimisation and flourishing in early adulthood Existing knowledge on flourishing in early adulthood after childhood victimisation is limited. Most studies investigating flourishing in adults who experienced childhood victimisation reported poorer outcomes compared to non-victimised individuals (Armitage et al., 2021; Mitchell et al., 2020; Wang et al., 2022; Zielinski, 2009). However, these studies did not examine whether a subset of victimised individuals could flourish despite their adverse experiences. Moreover, previous research often focused on single domains of functioning, such as psychological well-being (Armitage et al., 2021) or socio-economic outcomes (Zielinski, 2009), without considering whether those who have been victimised can flourish across multiple domains. Moreover, existing research has often focused on single, specific types of childhood victimisation (Armitage et al., 2021), which could be misleading because children often experience more than one type of victimisation (Turner

	et al., 2010). The strength of associations between victimisation and functional outcomes also varies depending on whether prospective or retrospective measures of victimisation are used (Latham et al., 2021) possibly because these different measures result in largely non-overlapping groups of children being classified as exposed to victimisation (Newbury et al., 2018). Many existing studies have also relied on cross-sectional designs and thus cannot establish the temporal order of victimisation and flourishing, which limits the ability to establish causality (Mitchell et al., 2020; Wang et al., 2022; Zielinski, 2009). Additionally, examining potential sex differences in flourishing after childhood victimisation is needed. Epidemiological and neurobiological studies suggest that women are more likely to flourish than men in early adulthood (de la Fuente et al., 2020; Samplin et al., 2013) but whether this occurs for exposure to a range of different types of victimisation and across multiple domains remains unclear.
Project aims / objectives	This study aims to address the following main question: Among individuals exposed to any type of victimisation in childhood, are some able to flourish when they reach adulthood? Additionally we will explore: Do victimised children flourish across multiple domains of functioning or only in certain ones? Does flourishing vary depending on the type of victimisation experienced, exposure to single versus multiple types of victimisation, and/or by gender? To address these questions, we will use data from the Environmental Risk (E-Risk) Longitudinal Twin Study, a large, nationally representative cohort of same-sex twins born in the UK. This cohort's prospective longitudinal design, with functioning outcomes measured after childhood victimisation, overcomes the limitations of cross-sectional studies. It enables the investigation of associations between exposure to various types of victimisation (including physical abuse, sexual abuse, emotional abuse and neglect, physical neglect, exposure to domestic violence, and bullying by peers), as well as exposure to multiple types (poly-victimisation) and functional outcomes across multiple domains. Some measures of victimisation were also assessed retrospectively allowing us to explore if associations with flourishing are similar (or different) for prospectively and retrospectively measured exposure to childhood victimisation. Moreover, the sample also comprises roughly equal numbers of men and women enabling us to investigate potential sex differences. Drawing on the various conceptual frameworks of flourishing identified, and considering both the age of participants (early adulthood) and the variables available in our study, we will explore functional outcomes at age 18 across four distinct domains: (i) social well-being (i.e., high perception of social status, high perceived ability to get ahead, and high cognitive functioning), (iii) physical health (i.e., high levels of physical activity, good sleep
Brief statement of your hypothesis	We hypothesise that: (i) in a longitudinal cohort with prospectively measured victimisation and outcomes, exposure to any type of severe victimisation in childhood will be associated with worse functional outcomes in early adulthood compared to those who have not experienced victimisation. We predict that (ii) these associations will be weaker when victimisation exposure is (partially) defined by retrospective self-reports. Additionally, we hypothesise that (iii) among individuals exposed to any type of severe victimisation in childhood, some can flourish when they reach adulthood, although flourishing may not be uniform across every domain of functioning. Furthermore, we predict that (iv) flourishing among victimised children may vary by the type of victimisation experienced; (v) individuals who have experienced multiple types of victimisation (poly- victimisation) during childhood will be less likely to flourish than those exposed to a single type of victimisation because poly-victimised children generally have poorer outcomes (Mitchell et al., 2020); and (vi) early-adult women who experienced any type of severe childhood victimisation will be more likely to flourish than men.
Data analysis methods to be used	First, we will test in the whole sample the associations between exposure to any type of victimisation between birth and age 12 (severe rating for physical abuse, sexual abuse, emotional abuse and neglect, physical neglect, exposure to domestic violence, or bullying by peers) and the measures within each domain of functioning at age 18. Analyses will be conducted in Stata using linear regression for continuous variables and ordered logistic

(approx. 100 - 500 words)	regression for ordinal categorical variables. All analyses will account for the non- independence of twin observations using the Huber-White variance estimator (Rogers, 1993) and will be subsequently adjusted for biological sex, intelligence quotient at age 5, family socioeconomic status, and family psychiatric history to take into account these potentially confounding factors. This initial set of analyses will confirm whether exposure to any type of victimisation by age 12 is associated with poorer functional outcomes in this sample. As a sensitivity analysis, we will repeat the analyses using retrospectively assessed types of victimisation (where available) to check whether similar findings are obtained using this method of classifying victimisation exposure. If differences emerge then we will also repeat analyses in Step 2 below using the (partially) retrospectively assessed 'any victimisation' group. Second, in the subsample of children exposed to any severe victimisation, we will
	investigate whether some victimised children flourish at age 18 by ascertaining the percentage that perform better than other victimised children for the measures within each functional domain. Consistent with previous analyses in this cohort (Kim-Cohen et al., 2004), for continuous variables we will use the standardised residuals obtained from the regressions conducted in Step 1, which indicate the difference between children's actual score on each functional outcome and the score predicted by their exposure to victimisation, and recode these where necessary so that higher scores indicate that they are doing better than expected. Children who have a residual score >0 (their actual score is greater than their predicted score) will be classified as 'flourishing' (1) for that measure, while those that score 0 (no difference between actual and predicted score) or <0 (actual score is worse than predicted score) will be classified as 'not flourishing' (0). For the only categorical outcome variable, educational attainment, those in the highest category (have obtained 1 or more A levels) will be considered to be flourishing whereas those who have obtained either no qualifications or only secondary school qualifications (GCSEs) will be classified as not flourishing.
	We will describe the percentage of victimised children who are flourishing for each measure within the four functional domains. Within this victimised subsample, we will then conduct binary logistic regression analyses to explore the association with flourishing for (i) each type of victimisation (e.g., physically abused vs. not), (ii) poly-victimisation (no=only exposed to 1 type of victimisation, yes=exposure to 2 or more types), and (iii) biological sex. All analyses will account for the non-independence of twin observations using the Huber-White variance estimator (Rogers, 1993) and will be subsequently adjusted for biological sex (except where this is the predictor variable), intelligence quotient at age 5, family socioeconomic status, and family psychiatric history to take into account these potentially confounding factors. As a sensitivity analysis, we will repeat these logistic regression analyses using a more extreme definition of flourishing - namely victimised individuals with standardised residuals in the top 25th percentile (consistent with previous analyses in this cohort; Kim-Cohen et al., 2004). These analyses will only be conducted for associations that were statistically significant (at p<0.05) in the main analyses, where flourishing is defined more broadly.
Significance for theory, research methods, or clinical practice	This study will extend existing work by improving our understanding of flourishing among young adults exposed to victimisation. This has the potential to bring hope to individuals exposed to victimisation early in life that they can do better than expected and may help inform interventions aimed at enabling children exposed to victimisation to flourish when they reach adulthood.
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Z	Zielinski DS (2009) Child maltreatment and adult socioeconomic well-being. Child Abuse and Neglect 33, 666-678.		
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3. Expected project outcomes

Please note:

The stated end date must be within 24 months of the date when this form is submitted. This end date will form part of the formal data use agreement and on this date you should delete the dataset. Therefore, it must be a realistic date for completion of the project including all analysis, writing a manuscript, review of the manuscript by all collaborators, submission, revisions, and acceptance of a paper for publication.

If you require an extension to the end date of the project, then you should contact Prof Fisher (<u>helen.2.fisher@kcl.ac.uk</u>) to discuss this. If you have signed a formal data use agreement, you will need to complete a form to request a licence

extension. In some cases, we may also ask you to complete a new concept paper form if there have been substantial changes to the project or a long period of time has elapsed (e.g., greater than a year since the end date of the original project).

If the objective of the project is not a journal publication, please suggest an end date within 12 months instead of 24 months, and state a measurable, concrete outcome. If the objective of the project is a student dissertation, then the expected end date should be the deadline for submission of the dissertation; dissertation projects will only be accepted on agreement that they are strictly not for publication.

Date form submitted	29-10-2024		
	DD-MM-YYYY		
End date for the	29-10-2026 D-М-Ү		
project	DD-MM-YYYY		
Do you expect to publish your results in a journal?	● Yes ○ No		
If yes, please provide a provisional list of author names	Flora Blangis, Louise Arseneault, Avshalom Caspi, Andrea Danese, Rachel M. Latham, Terrie E. Moffitt, Stefan Sprinckmoller, Yichang Wang, J. Kathy Xie, Helen L. Fisher		
lf yes, please provide a provisional list of journals	Lancet Public Health Trauma Violence & Abuse Child Maltreatment Child Abuse & Neglect Development and Psychopathology		

Applicants: If you would like to continue your application later, please press the "Save and return later" button below. Please copy or write down the Return code provided.

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4. List of variables required

Please note:

When specifying variables, please be unambiguous. For each variable, specify the name of the measure, twin age, informant, and if you want specific subscales/derived categories (e.g., Depression from interview with twin at age 18; both number of symptoms and DSM-IV diagnosis). Alternatively, for maximum clarity, give actual variable names (e.g., MDESXE18 - MDE Symptom scale - P18 - Elder; DXMDEE18 - Major depressive episode, dsm4 - P18 - Elder).

By default, the dataset will usually include twin and family IDs, the "random" and "true" twin order variables, the cohort the twin is from (1994 or 1995), twin sex, ethnicity and zygosity variables, and family socioeconomic status at age 5. These routine background variables are listed in the table below. If you require further background variables, please specify them in your list.

Access to some parts of the dataset are restricted, namely identifiable data (e.g., postcodes, video recordings, individuallevel genotypic and epigenetic data) which will not be shared outside King's College London, and linked administrative data which is only accessible via the UK Longitudinal Linkage Collaboration's Trusted Research Environment (this requires a separate formal data access agreement).

Background variables that will be included by default:

Variable name	Description	
FAMILYID	Unique family identifier	

ATWINID	Twi	n A ID (ex chkdg)		
BTWINID	Twi	n B ID (ex chkdg)		
RORDERP5	Ran	dom Twin Order		
TORDER	Tru	e Twin Order		
RISKS	San	nple Groups		
COHORT	Coh	ort		
SAMPSEX	Sex	of Twins		
ZYGOSITY	Zyg	osity		
SETHNIC	Eth	nicity of Twins		
SESWQ35	Soc	ial Class Composite		
Please select the variables that will be requested		e	 Age 5 variables Age 7 variables Age 10 variables Age 12 variables Age 18 variables Age 26 variables Age 30* variables 	
Age 5 varia	bles	IQE5 Pro-rated IQ sco	ore - Elder	
Age 10 variables		ExpV_DV510 Exposure to domestic violence, 5 to 10, 012 coding (from HonaLee)		
Age 12 variables	eanseve12 Severity of Emotional abuse/neglect of Elder twin, thru age 12, 2014 pabsevtye12 Physical abuse by 12, severity, Elder pnseveritye12 Physical neglect by 12, severity, Elder sasevtye12 Sexual abuse by 12, severity, Elder bullseve12 Bullying victim to Age 12 - Elder EX_SVE12 Exposed to severe victimization (0/1), 5-12, E-Twin polyve512c Extent of Polyvictim (Truncated @3), 5-12, E-Twin FHANYPM12 Proportion of family members with valid data with any psychiatric disorder			
Age 18 variables		CTQPNCCE18 Physica CTQPACCE18 Physica CTQENCCE18 Emotion CTQEACCE18 Emotion CTQSACCE18 Emotion CTQSACCE18 Sexual A EDUCACHVE18 Highe SICOUNTRYE18 Subje SSUPPORTE18 Social OPTIME18 Optimism RVPAPRE18 Optimism RVPAPRE18 RVP A-pri RVPMLTE18 RVP Mea SWMSTAE18 SWM Str SWMTEAE18 SWM Str SWMTEAE18 SWM Tot SWMMLRE18 SWM M SSPSPLE18 SSP Span SSPRSLE18 SSP Span PHYACTE18 Physical A PSQIE18 PSQI - Globa ????? Biological age - totlifsate18 Total Life	ysical Neglect CTQ +/- P18 - Elder ysical Abuse CTQ +/- P18 - Elder notional Neglect CTQ +/- P18 - Elder otional Abuse CTQ +/- P18 - Elder (ual Abuse CTQ +/- P18 - Elder lighest educational achievement (based on QCF) - P18 - Elder Subjective social status ladder task - elder ocial Support scale - P18 - Elder nism Scale - P18 - Elder A-prime - P18 - Elder Mean Latency - P18 - Elder M Total errors - P18 - Elder // Mean time to last response - P18 - Elder iscal activity (overall) - P18 - Elder Sical activity (overall) - P18 - Elder Sical activity (overall) - P18 - Elder age - P18 - Elder (standardised DunedinPACE values) al Life satisfaction score	