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**A Pilot for Validation of the Eco-System of Extremist
Violence Conceptual Model Using Practitioner Perceptions**

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TITLE: A Pilot for Validation of the Eco-System of Extremist Violence Conceptual Model Using Practitioner Perceptions

ABSTRACT:

The Eco-System of Extremist Violence (ES-EV) is a preliminary conceptual model to aid with the risk formulation of extremist violence. The approach complementing established risk assessments originated from clinicians’s need for guidance to navigate mental health issues in radicalised forensic populations, as well as the overlap of their risk factors with general non-extremist violence. The ES-EV is based on a variety of multi-methodological studies but awaits validation.

Out of 80 international professionals, such as psychologists and law enforcement, attending a seven-hour online training, 39 completed pre- and post-surveys. These included ratings of their confidence, overall knowledge, knowledge about specific risk factors, and competence regarding general risk assessment and the assessment of extremist violence specifically. The post-survey also offered the opportunity for qualitative feedback on the ES-EV.

Paired t-tests yielded significant positive changes for all radicalisation-related indexes ($p < .001$), with large effect sizes ($d = -1.52$ to -1.72). This was mirrored by three themes derived from the reflexive thematic analysis: (1) strengths of the ES-EV, (2) limitations of the ES-EV, and (3) recommendations for application.

CUST_RESEARCH_LIMITATIONS/IMPLICATIONS__(LIMIT_100_WORDS) :No data available.

The findings not only offer preliminary evidence for the utility of the ES-EV but also show the improvement participants experienced by understanding extremist violence in the wider group-based violence bracket. This is especially important, as the initial knowledge and competence indices were a standard deviation lower than for general violence, highlighting the need for training in the field. The study lends further credibility to the use of the ES-EV in practice.

CUST_SOCIAL_IMPLICATIONS_(LIMIT_100_WORDS) :No data available.

This study is the first to examine the utility of the ES-EV with practitioners, inviting future independent exploration.

A Pilot for Validation of the Eco-System of Extremist Violence Conceptual Model Using Practitioner Perceptions

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Purpose: The Eco-System of Extremist Violence (ES-EV) is a preliminary conceptual model to aid with the risk formulation of extremist violence. The approach complementing established risk assessments originated from clinicians' need for guidance to navigate mental health issues in radicalised forensic populations, as well as the overlap of their risk factors with general non-extremist violence. The ES-EV is based on a variety of multi-methodological studies but awaits validation.

Design: Out of 80 international professionals, such as psychologists and law enforcement, attending a seven-hour online training, 39 completed pre- and post-surveys. These included ratings of their confidence, overall knowledge, knowledge about specific risk factors, and competence regarding general risk assessment and the assessment of extremist violence specifically. The post-survey also offered the opportunity for qualitative feedback on the ES-EV.

Findings: Paired t-tests yielded significant positive changes for all radicalisation-related indexes ($p < .001$), with large effect sizes ($d = -1.52$ to -1.72). This was mirrored by three themes derived from the reflexive thematic analysis: (1) strengths of the ES-EV, (2) limitations of the ES-EV, and (3) recommendations for application.

Practical implications: The findings not only offer preliminary evidence for the utility of the ES-EV but also show the improvement participants experienced by understanding extremist

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violence in the wider group-based violence bracket. This is especially important, as the initial knowledge and competence indices were a standard deviation lower than for general violence, highlighting the need for training in the field. The study lends further credibility to the use of the ES-EV in practice.

Originality: This study is the first to examine the utility of the ES-EV with practitioners, inviting future independent exploration.

Keywords: Radicalisation; Eco-System of Extremist Violence; Forensic patient; practitioner; Risk formulation; utility

Introduction

The Eco-System of Extremist Violence (ES-EV) is a preliminary conceptual model that can be utilised alongside established risk and threat assessment instruments to aid formulation and developed to support the integration of pragmatic guidance into practice (see Henrich et al., 2025). *Extremism* is here aligned with the UK government's definition, encapsulating any agenda that threatens democratic values (e.g., Lowe, 2024). However, recent research (e.g., Patel & Hussain, 2019; Henrich et al., 2025) questions the importance of ideological conviction for the occurrence of extremist violence. Thus, the ES-EV is more aligned with the broader term *group-based violence* (Cook et al., 2013), framing this behaviour as violence with its intent linked to a real or perceived group. The need for this practical guidance in forensic settings (e.g., prisons, forensic mental health hospitals) has been identified as required, via interviews with stakeholders and a systematic literature review (Henrich et al., 2024). A core theme emerging has been the ability to translate assessment tools, like the Extremism Risk Guidance-Revised (ERG-R; Kenyon et al., 2025) or the Violent Extremist Risk Assessment 2 Revised (VERA-2R; Pressman & Flockton, 2012), into practice so that care and risk management pathways can be developed and refined. A detailed outline of how the ES-EV attempts to address the challenges in extremist risk formulation can be found in Henrich et al. (2025).

Research has tried to bridge the gap between assessment and practice (Logan, 2016). For example, the ES-EV utilises the 5-P approach (Macneil et al., 2012) a formulation technique capturing the following five aspects: (1) Problematic behaviour—in this case, future extremist offences—with (2) Predisposing factors, often framed as early childhood experiences that created a propensity for offending behaviour; (3) Precipitating factors, representing situational triggers; (4) Perpetuating factors that maintain the maladaptive dynamic; and (5) Protective factors that mitigate the dynamic. However, the 5-P approach does not explicitly capture the social factors, an influence category presumed central to radicalisation (e.g., Borum, 2015).

This social nature is realised in the ES-EV by viewing extremist violence as the behavioural result of an appraisal process shaped by self-identity and group identity (Henrich et al., 2025). Informed by Cognitive Appraisal Theory (CT; e.g., Lazarus & Folkman, 1984) and the Information Processing Model for the Development of Aggression (IPMDA; Huesmann, 1988), the appraisal process is understood as an interpretation of social stimuli, shaped by cognitive components, such as aggressive scripts. The appraisal can include normative beliefs that excuse the use of violence (Huesmann & Guerra, 1997). In the case of extremist violence, the ES-EV proposes how this can include distorted worldviews that refer to political events that

are pro-violent, such as narratives about individuals needing to secure their survival in society (Henrich et al., 2025).

Furthermore, the appraisal process is shaped by social cognitions related to the individual's self-identity, such as (re)gaining self-importance (Henrich et al., 2025; Kruglanski et al., 2014). The ES-EV includes this aspect and expands this to capture the Dark Triad. This triad represents three maladaptive patterns of personality styles (described in more detail in Henrich et al., 2025), commonly thought to be associated with offending behaviour (e.g., Paulhus & Williams, 2002), including tentative links with extremist violence (e.g., Henrich et al., 2025; McGregor et al., 2015). Whereas earlier researchers (e.g., Stankov et al., 2018) have summarised the cognitions that mediate the link between personality and violence as *extremist mindset* and facilitated through pro-violent attitudes (Pavlović & Wertag, 2021), in the ES-EV, self-identity is complimented with group identity. This ensures that (a) how the individual sees themselves in the context of a real or perceived group is reflected in the formulation; and (b) only subjective experiences of the assessed are included, not objective group membership. Thus, the ES-EV also applies to lone actors on the fringes of groups or movements. In the conceptualisation, group here serves a dual function, making both pro-violent extremist interpretations more readily available (Webber & Kruglanski, 2017) and offering learning experiences to act upon those interpretations, cementing aggressive scripts.

The ES-EV includes a variety of other factors, which are conceptualised as optional. They are either not directly linked to the formulated risk but rather capture the potential severity of future offences, such as capability (Lloyd & Dean, 2015), or mitigating factors (e.g., Silke et al., 2021), since little is known about them. In this context, ideology is also viewed as separate from the risk of extremist violence, reiterating findings from previous studies (e.g., Patel & Hussain, 2019). when formulating the risk of extremist violence with forensic mental health populations, the ideological components appear outweighed by pragmatic reasons, such as securing survival.

[Insert Figure 1 about the ES_EV.]

The ES-EV has been developed with access to data from a high secure male forensic mental health population, a review of expert views and a systematic review. However, it is a preliminary model that is, as of yet, untested. The validation of the model remains outstanding for the purpose of this brief report. The current study aims to understand the utility of the ES-EV by comparing practitioners' capability to formulate the risk of extremist violence before and after a training workshop on the guidance. The following is hypothesised:

H1: When formulating the risk of extremist violence, using the ES-EV will demonstrate significant improvements between pre- and post-training for participants regarding knowledge (H1_A), confidence (H1_B), and competence (H1_C).

H2: When formulating the risk of general violence with no indication of radicalisation, using the ES-EV will demonstrate no significant improvements between pre- and post-training for participants regarding knowledge (H2_A), confidence (H2_B), and competence (H2_C).

Method

The study design is an established practice for the evaluation of risk assessment approaches (e.g., Storey et al., 2011; Cook et al., 2013) and focuses on the utility of the ES-EV.

Procedure. Ethical approval was obtained from the University of Central Lancashire. Participants completed pre- and post-survey, with responses linked through anonymised self-generated study IDs. The training delivered via MS Teams was advertised via the principal investigator's LinkedIn, as well as via the snowballing technique. While the ES-EV was designed with data from a psychiatric service, stakeholder engagement demonstrated a wider interest beyond this setting. Thus, registration was open to everyone, but a familiarity with risk assessment practice was recommended. This allowed us to gauge the potential for application in community settings, too. The incentives included that the training was free of charge and that participants would receive an attendance certificate for their continuous professional development.

Participants. Eighty professionals attended a seven-hour training course online. Of these, 66% completed the pre- and post-survey. However, of those, fourteen could not be matched across rounds because of deviating IDs participants had entered, resulting in a final set of 39 participants. The average age of the participants was 32.2 years (*Min* = 23, *Max* = 62), with most working in the UK (*N* = 32, 89%). Other nationalities represented between 1.5-7.5%, including the Netherlands, Germany, Ireland, Sri Lanka, and Australia. The minimum qualification was a Bachelor's degree, with 80% having a Master's degree or higher. Professions included clinical and forensic psychologists (30%), psychologists in training (25%), law enforcement (17.5%), academics, such as lecturers and researchers (15%), nurses (7.5%) and psychiatrists (5%). Most participants (72.5%) had used a range of risk assessment tools, with the most common being the Historical, Clinical and Risk Management-2 (55%) by Douglas et al. (2013).

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Training and Material. The training was developed by the first author. Before delivery, it was piloted on psychologists (N = 11) as part of the staff body in a secure forensic mental health setting. This included an introduction to extremist violence, central theoretical models and an overview of common assessment approaches. Participants were then introduced to the ES-EV and the empirical evidence, before practising the risk formulation on five clinical case vignettes and receiving feedback.

[Insert Figure 2 with all training steps and case vignette example]

The case vignettes were between 300-500 words long and informed by the first author’s clinical experience, the research on the ES-EV, and reviewed by a senior clinical team member before use. No real cases were used to ensure no risk to patients being identified. Instead, the vignettes reflected the full range of categories indicated in the systematic review (Henrich et al., 2024), including individuals who had committed hate crimes, were lone actors or were part of an extremist organisation, as well as non-radicalised individuals (i.e., general violence).

All participants completed two surveys, one before and one after the training. The pre-training questionnaire captured demographic characteristics (see participant section). Both pre- and post-questionnaires asked participants to rate their confidence, overall knowledge, knowledge about specific risk factors, and competence on a 10-point Likert scale (e.g., ‘1-not at all confident to 10-completely confident’) regarding general risk assessment and the assessment of extremist violence specifically (Table 1). These scales were based on those utilised by Cook et al (2013) based on previous risk assessment validation research. The post-survey also included open-ended questions allowing participants to give qualitative feedback on the ES-EV and its utility, the training material, and the presenter.

[Insert Table 1 with all questions.]

Results

By comparing the confidence, knowledge, and competence ratings before and after the training, the study offers preliminary insight into practitioner perception that lays the groundwork to determine whether the ES-EV has utility and aids the risk formulation of extremist violence. Before exploring the potential improvement, the outset of all participants is presented in Table 2. It becomes apparent that before the training, the mean scores of all indexes related to general violence were higher than the indexes related to extremist violence;

on average, 3.2 points higher on the Likert scale. The mean differences in each variable pre- and post-training are also presented in Table 2.

[Insert Table 2 with both GV and EV, pre- and post-test (M, SD, M, SD, MD, t, Cohen's D)]

A paired t-test was used to examine differences in ratings across participants. Although some variables, especially those related to general violence and knowledge of risk factors, did not meet the assumption of normality, the test was kept for several reasons. First, visual inspection of distribution plots showed no extreme outliers, and in some cases, the distributions were skewed but still unimodal and relatively symmetric (notably the knowledge indicator). Second, the paired t-test is known to be robust to moderate violations of normality, especially when sample sizes are above 30 and the data lack significant outliers (De Winter, 2013). Because these conditions were satisfied, the paired t-test was considered suitable for assessing pre-post changes in ratings.

Overall, a significant positive change was observed for all radicalisation-related indexes ($p < .001$), with large effect sizes ($d = -1.52$ to -1.72). Regarding general violence, only knowledge about general violence $t(38) = -.49$, $p = 0.002$ and reported competence $t(38) < .001$, $p = -0.57$ changed significantly with moderate effect sizes.

Qualitative Analysis. A Reflexive Thematic Analysis (Clarke & Braun, 2013) was performed to summarise participants' written feedback. Coding was carried out in Microsoft Excel, with a second rater independently reviewing 10% of the dataset in earlier stages of analysis to ensure consistency. However, for this specific analysis, all 53 responses (66% of the full dataset) were reviewed in full by the second rater, as responses were analysed individually and did not require matching across participants. Inter-rater agreement was approximately 90%, with any discrepancies resolved through direct discussion to reach consensus. This approach ensured transparency and reliability in the qualitative coding process. Responses were summarised into three themes: (1) strengths of the ES-EV, (2) limitations of the ES-EV, and (3) recommendations for application (Figure 2).

[Insert Figure 3 with all themes and sub-themes, as well as N]

All participants were able to identify (1) strengths of the ES-EV. The following sub-themes emerged: (a) Model addresses professionals' needs ($N = 19$); (b) Clear and supporting model structure ($N = 16$); and (c) the ES-EV offers new insights ($N = 4$). In the first sub-theme, more than half the respondents ($N = 14$) viewed the ES-EV as 'useful', for example, stating 'I

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definitely feel that there is a need for it'. Reasons included closing the link between behaviour patterns and future offences and contextualising existing risk factors, resulting in some noting they will use the model in practice. In the second sub-theme, the responses emphasised the comprehensive and holistic nature of the model. This was supported by a good visualisation during the training and—more importantly—the utilisation of a familiar structure, namely the 5P approach (Macneil et al., 2012). The last sub-theme highlighted the inclusion of personality styles as an important addition to the formulation.

Five participants outlined (2) limitations of the ES-EV, with the two sub-themes (a) specialised training required; and (b) overwhelming number of dynamics. The former described the ES-EV as holistic but voiced worry that even after the training event, they did not have the expertise to complete such formulations. The latter repeated the notion of a comprehensive formulation but criticised that it required too many theories to be considered for completion.

Lastly, two respondents offered (3) suggestions to advance the ES-EV, including a severity rating and emphasising more clearly that the formulation does not result in any typology, with personality styles being mere guidance.

Discussion

The study reiterated initial stakeholders' expression of the need for such a formulation approach in clinical practice and the potential benefits of the ES-EV beyond psychiatric settings. The changes across all indicators—confidence, knowledge, and competence—highlighted the positive impact of the ES-EV and the improvement that participants experienced in their own practice, thus, confirming hypothesis 1. The findings also imply the utility of the group-based violence definition (Cook et al., 2013), with participants seeing a benefit to focusing on the social aspects of radicalisation, as described by Borum (2015). The qualitative feedback mirrored the findings, with practitioners viewing the ES-EV as a useful extension of their clinical repertoire, utilising established approaches to integrate new knowledge, viewing the addition of group considerations (Webber & Kruglanski, 2017) a worthwhile extension. This was a consistent picture across the entire group.

However, hypothesis 2, that participants would not experience improvement in their risk formulation practice related to general violence, was not confirmed. Instead, significant improvements were observed across all indexes despite this violence type not being the focus of the ES-EV. This is likely due to the participants receiving a refresher on the already familiar 5P approach (Macneil et al., 2012), as employed in the HCR-20 (Douglas et al., 2013). It might

also be a result of the presented overlap of risk factors between extremist and general violence (Patel & Hussain, 2019; Henrich et al., 2024).

While the sample possessed a wide range of work experience reflective of real-life clinical settings, it is noteworthy that the indices related to formulating extremist violence were a standard deviation lower than indices related to general violence. Thus, the current study reiterated the pronounced need for training related to clinically understanding radicalisation processes for professionals working in risk assessment. Similarly, qualitative responses regarding protective factors were limited, echoing the limited empirical scope for mitigating factors regarding extremist violence (Silke et al., 2021; Henrich et al., 2025).

Limitations. Limitations must be considered. While 34% of non-response is considered standard in training research, where typical response rates hover around 50% (Baruch and Holtom, 2008), the level of attrition introduces the possibility of nonresponse bias. Without data on why participants dropped out, it cannot be ruled out the risk that those who completed the surveys may have held systematically different views. Furthermore, several nationalities were included, but the majority was British, restricting generalisability. Equally, psychologists were the most dominant group, arguably limiting insight into the benefits to other professions, such as law enforcement. Linked to this, a considerable number of participants were trainees, likely explaining some of the lower index levels in the pre-survey. The current study has a limited focus, as is commonly, entire risk assessments are being evaluated, including interrater reliability on the item level, not just final formulations. Lastly, the influence of the training delivery and content on participants' utility ratings could not be assessed separately, as insight was purely based on self-report. Hence, it is unclear whether the improvements stem from the training delivery or the assets the ES-EV has to offer.

Practical implications. The study lends further credibility to the use of the ES-EV in practice. It is recommended that the formulation approach is used to summarise the findings of validated assessment instruments, such as the ERG-R (Kenyon et al., 2025) or the VERA-2R (Pressman & Flockton, 2012). This requires a familiarity with risk formulations more generally and specialised training regarding extremist violence. At the current point in time, the model is explicitly a theory-muse to stimulate ideas and support practitioners ongoing quest in translating empiricism to practice (Logan, 2016).

For example, current participants voiced a need for structure that echoes calls by surveyed experts (Henrich et al., 2025) to understand severity more clearly in the risk assessments. Future versions of the ES-EV could incorporate the formulation of risk scenarios more

explicitly, echoing comparable practice in general violence assessments, such as the suggestions in the HCR-20 (Douglast et al., 2013) to summarise the final formulation.

Future research. Confirming the perceived usefulness of the ES-EV is the first step in its evaluation. However, an understandable model does not automatically equate to usefulness. For example, participants' feedback indicated a weighing between the comprehensiveness and utility of the model. To bridge the gap between practice and theory, the principle of Occam's Razor should be introduced. The philosophical argument postulates that the easiest explanation is usually the most practical. Thus, a streamlined ES-EV should likely support practitioners' assessments the most effectively, with new empirical evidence being able to weigh the different components of CT (Lazarus & Folkman, 1984), IPMDA (Huesmann, 1988), self-importance (Kruglanski et al., 2014), maladaptive personality styles (Paulhus & Williams, 2002), and mindset (Pavlović & Wertag, 2021) more clearly. Future research will have to explore the practice-translation-bridge, including the reliability between assessors and the predictive validity of the conclusions in controlled conditions beyond self-report measures. Established assessment instruments should be included in this investigation to understand whether the ES-EV offers discriminate validity.

Conclusion. The study aids the implementation and continuous improvement of the ES-EV. It is hoped that the model supports risk management and care pathway planning. The current findings suggest that the formulation could present a valuable addition to the clinical repertoire when addressing extremist violence and can function as a ground for shared understanding across various professions. The findings of the initial study appear to apply to settings beyond the high-secure setting, with practitioners from various settings seeing benefits to the ES-EV implementation.

Practical Implications

- The initial positive response by both practitioners and academics to the ES-EV in this pilot should offer reassurance to professionals that the conceptual model is a useful guide in the formulation of extremist violence. Preliminary findings indicate that this is the case not only for psychiatric populations but also in the community.
- The study also reiterates the need for training in the field. This should include specialised content, such as the training on models like the ES-EV, but also broader refreshers on risk formulation practices, such as the 5P. This seemingly has cross-domain benefits, reinforcing the value of integrated training modules rather than siloed instruction.
- Feedback from participants suggested a trade-off between comprehensiveness and utility. Future iterations of the ES-EV should consider a more streamlined design that balances

theoretical depth with operational clarity. As such, the conceptual model also serves as a joint map for researchers and stakeholders to identify challenges for clinical practice.

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Appendix.

Figure 1.

The Eco-System of Extremist Violence

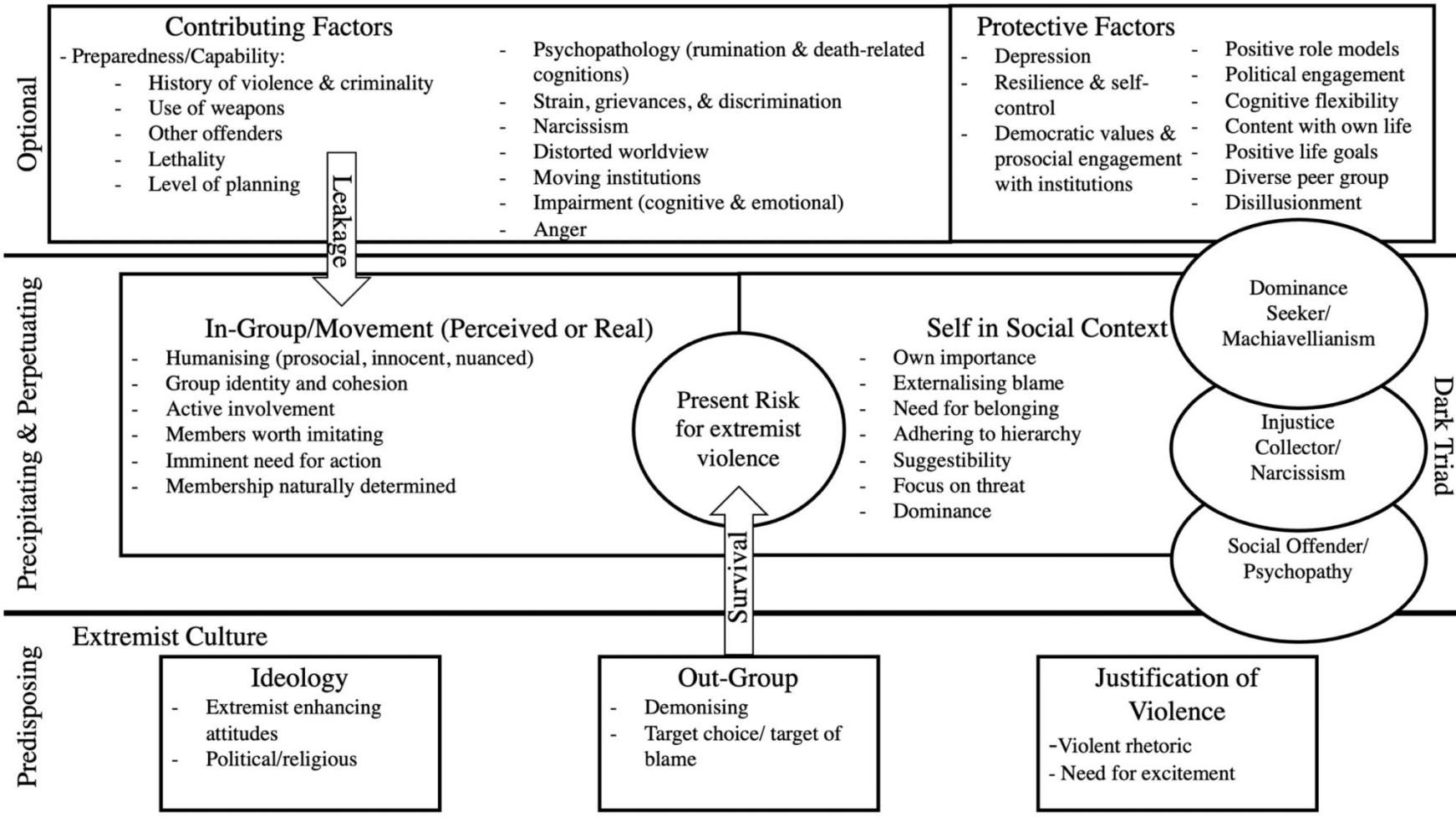


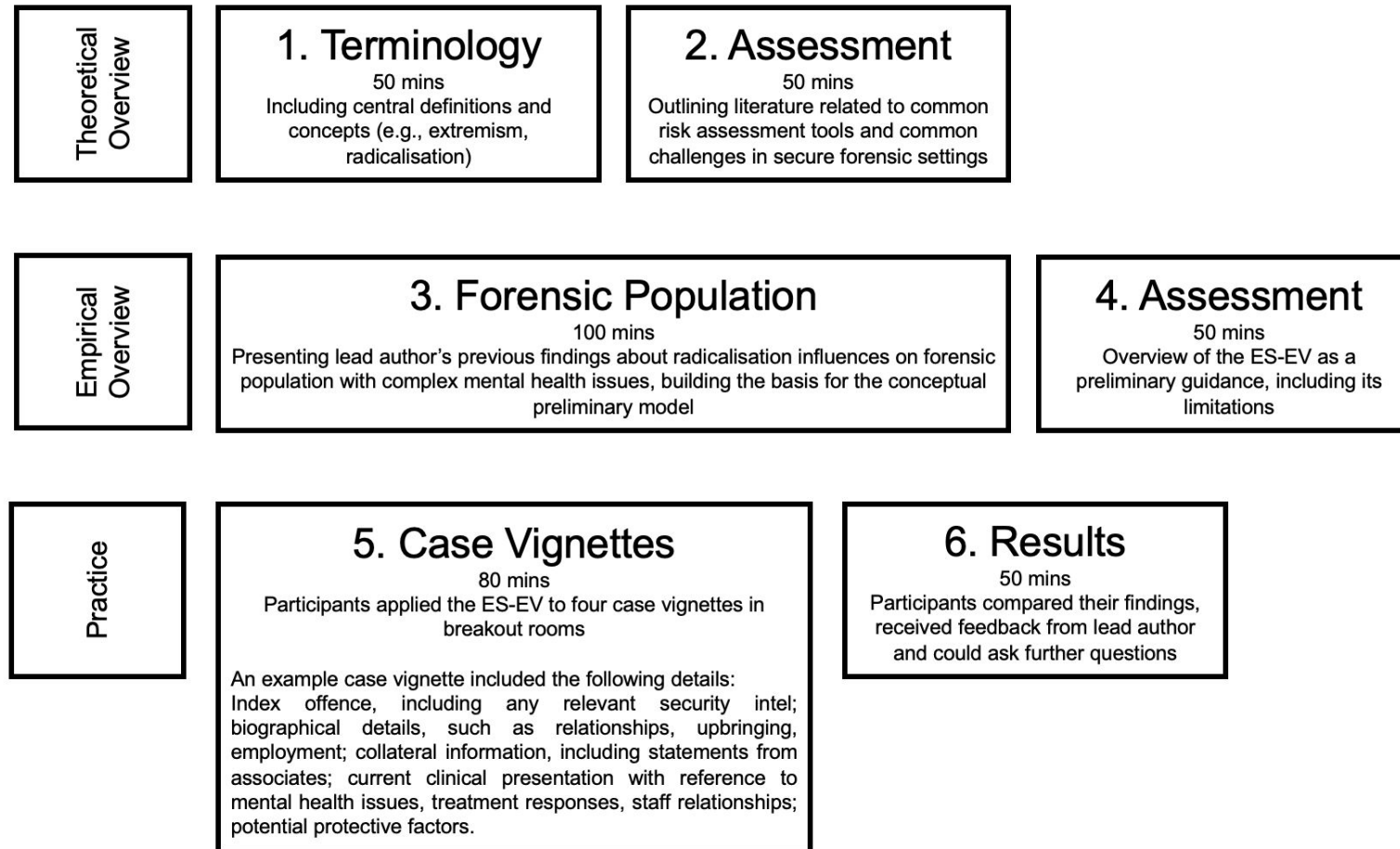
Figure 2.*Overview of Training Components With Case Vignette Example*

Table 1
Overview of All Survey Questions at Pre- and Post-Stage

Risk Assessment Exploration	
Risk assessment instruments that you are qualified for: ^A	Open-ended question
Years of work experience: ^A	
What kind of assessment instruments do you use? Please list them all. ^A	
General Violence	
How confident are you in your ability to assess an individual's risk for general violence? ^{AB}	10-point Likert-scale
How much knowledge do you feel you have about risk assessments for violence? ^{AB}	
How much knowledge do you feel you have about risk factors for violence? ^{AB}	
How competent do you feel about you are at assessing an individual's risk for violence given your current practical and technical skills? ^{AB}	
Extremist Violence	
How confident are you in your ability to assess an individual's risk for radicalisation? ^{AB}	10-point Likert-scale
How much knowledge do you feel you have about risk assessments for radicalisation? ^{AB}	
How much knowledge do you feel you have about risk factors for radicalisation? ^{AB}	
How competent do you feel about you are at assessing an individual's risk for radicalisation given your current practical and technical skills? ^{AB}	
ES-EV Exploration	
Please give feedback on the ES-EV (e.g., regarding its utility, its application): ^B	Open-ended question

Note: Questions marked with 'A' were asked in the pre-test, questions marked with 'B' were asked in the post-test, questions marked with 'AB' were asked at both time points. Likert-scale questions are based on the study design by Cook et al. (2013).

Table 2.*Mean Differences of Pre- and Post-Test Utility Ratings Using Paired T-Test*

	Pre Mean (SD)	Post Mean (SD)	MD	t(38)	p-value	Cohen's d
General						
Violence						
Confidence	6.46(2.33)	7.28(1.54)	0.82	-2.67	0.006	-0.43
Knowledge	6.64(2.29)	7.54(1.39)	0.90	-3.08	0.002*	-0.49
Knowledge – Risk Factors	7.18(2.14)	7.9(1.29)	0.72	-2.32	0.013	-0.37
Competence	6.41(2.28)	7.46(1.65)	1.05	-3.58	<0.001*	-0.57
Extremist						
Violence						
Confidence	3.64(2.47)	6.62(1.66)	2.98	-9.58	<0.001*	-1.53
Knowledge	3.28(2.49)	6.87(1.51)	3.59	-10.74	<0.001*	-1.72
Knowledge – Risk Factors	3.85(2.58)	7.13(1.36)	3.28	-9.58	<0.001*	-1.53
Competence	3.18(2.44)	6.36(1.71)	3.18	-9.45	<0.001*	-1.51

Note: SD stands for standard deviation. MD stands for mean difference. Values marked with * display significant results on the $p < 0.05$ level.

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Figure 3.
Overview of Themes and Sub-Themes Derived from Participants' Responses

