

**The Suicidal Continuum:  
A Review of the Factors Differentiating High and  
Low Lethality Suicide Attempts in Older Adults  
and an Empirical Exploration of the Ideation-  
Action Gap within IAPT**

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### **Thesis Portfolio Abstract**

Five chapters are contained within this portfolio. Firstly, an introduction to the suicidal continuum outlines the ideation-action theoretical framework on which this thesis is based. Given most well-established risk factors for suicide do not distinguish those who think about suicide from those who make attempts, the framework posits that distinct factors engender suicidal ideation and lead an individual to act. Furthermore, it highlights that suicide attempters are not a homogenous population and emphasises the importance of empirically investigating distinct suicidal subgroups.

The second chapter is informed by the principles outlined in the ideation-action framework. It comprises a systematic review and meta-analysis summarising the factors that distinguish suicide attempters who make suicide attempts of high and low medical lethality within an older adult population. The meta-analysis found suicidal intent and planning meaningfully distinguished high and low-lethality attempters while, contrary to adult populations, gender and age did not. A distinct pattern of differences in executive functioning is discussed and the author suggests high-lethality attempters are less prone to acting on suicidal urges, instead delaying their attempts which are subsequently better planned and more lethal.

After a bridging chapter, an empirical article examines the ability of the Improving Access to Psychological Therapies (IAPT) risk assessment protocol to distinguish those who present with suicidal ideation at assessment, and those who attempt suicide within the following two years. Past suicide attempts and non-suicidal self-injury distinguished ideators and attempters, while the intensity of suicidal ideation (passive death wish versus active intent) did not. The IAPT Phobia Scale correctly classified 49.30% of suicide attempters, with a two-point increase tripling the odds of a suicide attempt within two years.

Finally, a critical discussion examines the work as a whole, presents a novel theory of the role of experiential avoidance in suicide, and outlines directions for future research.

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Finally, I would like to acknowledge the human suffering of those who are stakeholders in this research including those who attempt or die by suicide, their loved ones, and healthcare professionals. No body of work will ever do justice to the individual human experience of suicide or adequately tell the stories that deserve to be told. This body of work is intended to highlight the futility of preventative individual "*risk assessment*" and promote an approach in which the purpose of clinical and research work is to understand the individual suicidal experience to the extent it is individually wished to be understood. Suicide research and practice must be for the benefit of the humans who, as clinicians, we are privileged to meet, not the systems, individuals and paradigms that have traditionally occupied theoretical pride of place, power, and privilege. This requires painful and open examination of the empirical limitations of our clinical "expertise" in the eyes of ourselves, the media, the public and the legal and clinical systems that govern our practice. A change across the entirety of these lenses is required to allow clinicians to take only the responsibility that is fair, and ultimately create a clinical environment that is free of shame, blame and stigma, for all human beings in, and outside of, the therapy room.

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## **Chapter One**

# **An Introduction to the Ideation-Action Framework and Continuum Model of Suicidology**

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Death by suicide accounted for 6517 deaths in the UK in 2018 (Office of National Statistics; ONS, 2019) and 700,000 deaths worldwide (World Health Organisation; WHO, 2021). Suicide represents the leading cause of death in men under 45, the second leading cause of death in individuals aged 16-25, and rates are at record highs in females under 25 (ONS, 2019; WHO, 2021). For death by suicide there are 25-30 attempted suicides, each with a raft of psychological, physiological, and socioeconomic consequences for those left behind, including family, friends, and clinicians (Han et al., 2016).

Traditional models of suicide, and the majority of suicide research to date, are borne of designs that compare suicide attempters to non-suicidal individuals (Klonsky et al., 2016). As such, myriad factors have been robustly associated with suicidality including psychiatric morbidity, pain and non-suicidal self-injury (NSSI) (McClatchey, et al., 2017). However, subsequent meta-analyses have highlighted that the most commonly cited of these factors do not distinguish those with suicidal ideation from those who attempt suicide, and do not have predictive validity beyond the mediation effect of ideation itself (May & Klonsky, 2016). For example, depression, hopelessness, and gender are poor predictors of progression from ideation to attempting suicide.

Consequently, a gap in the literature exists between what moves people from ideation to action. This ideation-action gap is of considerable concern as suicidal ideation is common across services (Liu et al., 2020), while clinicians can rely on few empirically supported indications of who is most likely to make a suicide attempt. Unsurprisingly, given the lack of evidence, suicide prediction is poor, with clinician judgment evidenced to have a positive predictive validity of 6%, and questionnaire tools and modelling faring worse still (Belsher et al., 2019; Lindh et al., 2020; Roos et al., 2013). Contemporary models of the suicidal process aim to address the above critiques by incorporating an *ideation-action* framework which posits that differential factors contribute to the development of suicidal ideation and the transition from ideation to attempt.

Joiner's (2005) interpersonal theory of suicide is credited with being the first ideation-action theory. It suggests thwarted belonging (social disconnection) and self-perceived burdensomeness interact to engender suicidal ideation but that without acquired capability, an individual will not attempt suicide. This contradicted the previously posited hypothesis that a worsening of suicidal ideation was the key driver of attempt (May & Victor, 2018). Joiner (2005) theorised that in order to die by suicide, one must master or inhibit the pain and

associated innate fear response triggered by an attempt to end one's life. Furthermore, he proposed that traumatic and painful experiences blunted pain and fear responses, enabling one to proceed with their final act.

In the decade and a half that has followed Joiner's initial work, alternative ideation-action theories have developed his initial hypothesis. O'Connors' (2011) Integrated Motivational-Volitional Model of Suicidal Behaviour (IMV) specifies motivational drivers of suicidal ideation and volitional moderators that drive or enable suicide attempts such as impulsivity, access to means and acquired capability. The model has received empirical support for its' factor structure (Dhingra et al., 2016). Additionally, the majority of the hypothesised motivational factors were found to distinguish non-suicidal individuals from ideators in a national sample of youths, while only volitional factors distinguished ideators from attempters (Wetherall et al., 2018). Klonsky and May's (2015) Three Step Theory specifies three elements of acquired capability: dispositional or baseline contributors such as genetics or personality traits, practical contributors such as access to means, and acquired contributors, akin to the traumatic experiences described by Joiner's (2005) interpersonal theory of suicide.

Practical contributors are perhaps the best evidenced of the three elements of acquired capability. Studies have shown that the majority of suicidal decedents with access to firearms use them as their method, and in a psychological autopsy study, all those dying by firearm did so by firearms they owned (Van Orden et al., 2016). The implementation or relaxation of firearm legislation has been shown to precede falls or rises in suicide death rates respectively, with studies suggesting regulations are responsible for reductions in deaths by suicide using firearms (Anestis et al., 2015; 2017). Exposure to the suicide of a family member or friend is hypothesised to increase the salience of suicide as a solution to distress and equip one with knowledge of methods and has been shown to differentiate ideators and attempters in adult and youth samples (Dhingra et al., 2015; Swanson et al., 2013).

In terms of dispositional contributors, a recent study showed a strong genetic contribution to acquired capability (Smith et al., 2012). However, given no studies to date have compared ideators to attempters, more research is required. Similarly, while fearlessness regarding death is associated positively with extraversion and openness, and negatively associated with neuroticism, the practical ability of these personality domains to differentiate ideators and attempters is untested (Christensen et al., 2014; Cramer et al., 2016). Impulsivity



does appear to differentiate ideators from attempters, but this association is strongest in younger adults and wanes with age (Baca-García et al., 2001; Levi-Belz et al., 2020).

When measured directly, findings regarding fearlessness about death are mixed. For example, fearlessness was unable to distinguish ideators and attempters in samples of domestic violence offenders (Wolford-Clevenger et al., 2017), individuals with eating disorders (Pisetsky et al., 2017), or younger adults with psychosis (Heelis et al., 2016). However, fearlessness did distinguish these groups in other samples of UK university students (Dhingra et al., 2015) and US adults (Klonsky & May, 2015), as have implicit measures of fearlessness such as EEG (Weinberg et al., 2017). Fearlessness regarding death is perhaps the facet of suicidal capability with the weakest evidence base and in need of refinement. Conversely, acquired contributors termed *painful and provocative experiences* (May & Victor, 2018) are consistently evidenced to separate ideators from attempters in adults (Pisetsky et al., 2017; Smith et al., 2010) and past suicidal behaviour is consistently evidenced as the most robust predictor of future suicidal behaviour (Bostwick et al., 2016). However, prior to the present empirical investigation, no studies to the authors knowledge have longitudinally evaluated the presence of a historical suicide attempt as a factor that may distinguish those with suicidal thoughts from those who go on to make a future suicide attempt.

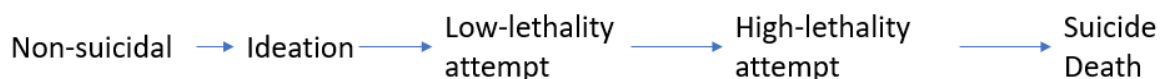
The ideation-action theories discussed so far have a growing evidence base, however further empirical support is required. Fluid Vulnerability Theory (Rudd, 2006, FVT) highlights key gaps in the literature and models. It posits that suicidal risk is dichotomised into baseline risk (stable factors such as traumatic experiences, gender and genetics) and acute risk, defined by proximal environmental stressors. Fluid Vulnerability Theory suggests a *suicidal mode* is activated by environmental events and that those with high baseline vulnerability have a lower threshold for suicidal behaviours to be activated. Once the suicidal mode is activated, a complex interaction of protective and escalating factors across domains of cognition, emotion, behaviour, and physiology determines the enactment of suicidal behaviour or, alternatively, de-escalation from the suicidal mode. A key contribution of FVT is to highlight the acute nature of suicide risk, congruent with findings that the duration between deciding to act on suicidal thoughts and a suicide attempt is typically less than 10 minutes (Deisenhammer et al., 2009). Given the overwhelming paucity of longitudinal studies and the reliance on cross-sectional research utilising lifetime presence of suicide

attempt or ideation as grouping variables, the utility of ideation-action models in clinical practice and risk prediction is limited.

A key conceptual underpinning and theoretical contribution of ideation-action theories, and research employing ideation-action designs, is the suicidal continuum. Ideation-action frameworks evidence that different factors separate non-suicidal individuals from ideators and ideators from attempters. However, research consistently finds that attempters are not a homogenous group. Those making attempts of high and low medical lethality differ from one another across methods, gender, age, and other factors such as impulsivity (Gvion et al., 2020). Furthermore, the majority of those who die by suicide do so on their first attempt (Yook et al., 2021) and differ even to high lethality attempters, who are considered the most accurate proxy of those who die by suicide. For example, psychological therapy and medication have shown efficacy in reducing suicide attempts but not fatalities, and a higher proportion of men die by suicide in comparison to those making high lethality attempts (Gvion & Levi-Belz, 2018; Paris, 2021). The logical extension of the call for research that follows an ideation-action framework is that studies are needed comparing adjacent groups along the suicidal continuum outlined in figure 1.

### **Figure 1**

#### *Suicidal continuum*



Both the suicidal continuum and the ideation-action framework have direct clinical implications. Attempted suicide and non-suicidal self-injury are among the most common reasons for presentation at an emergency department, with over 200,000 presentations annually within England alone (Carroll et al., 2014; Hawton et al., 2007). Over 40% of those who die by suicide attend an Emergency Department in the year prior to their death (Gairin et al., 2003), and suicidal ideation and attempt are common within primary and secondary mental health services (Ashrafioun et al., 2016). As such, contacts with mental health professionals represent key opportunities for assessment, engagement, and support. Indeed, a key part of a mental health clinician's role is to assess suicide risk, with mental health nurses, psychologists, psychiatrists and a raft of other clinicians tasked with risk prediction and

prevention. However, as discussed, when presented with a disclosure of suicidal ideation, clinicians have very little empirical evidence indicating who is most likely to attempt suicide or when this might occur, and suicide risk prediction is poor. Clinicians are therefore faced with trying their best to care for large numbers of service users with suicidal ideation, scant empirical backing and the responsibility of prioritising care and interventions that have the largest imaginable consequences.

In addition to the consequences for the patient, the ideation-action gap holds stark ramifications for clinicians themselves. Despite a lack of empirical support, clinicians can be held legally accountable for suicide deaths and are viewed as responsible by stakeholders including the media, family, friends and the public (Lancet Psychiatry, 2020). The weight of personal responsibility and psychological toll on clinicians is well documented. Over 80% of psychiatrists and 30-40% of psychologists experience a patient suicide in their career, with the vast majority reporting a detrimental impact on their personal and professional lives (Finlayson et al., 2018; Landers et al., 2010). Other professionals such as nurses, counsellors and social workers also frequently experience the suicide of a service user and often feel unsupported by their organisation in the aftermath (Sherba et al., 2019; Stovall & Hansen, 2021). Post-traumatic stress-disorder, depression, anxiety and suicidality are common, with the mental health impact of a suicide on clinicians lasting years after the event itself (Dransart et al., 2013; Schelbred & Nord, 2007; Ullström et al., 2014). Conversely, a survey of 143 consultant psychiatrists found that not a single respondent had sought professional help (Landers et al., 2010) and a third of nurses felt too embarrassed to seek support (Joesten et al., 2015). A common theme among all professionals is hopelessness and powerlessness juxtaposed with personal responsibility and guilt. Given caring professionals are predisposed to perfectionism, stress and an elevated suicide rates (Davidson et al., 2019; D'Souza et al., 2011), empirical research with null findings that highlights the limits of clinician responsibility is valuable in addition to research that helps clinicians better understand and formulate their client's suicidal experiences.

From the perspective of the healthcare professional, the service users who they encounter, and a range of additional stakeholders, research that is nested within the suicidal continuum and addresses the ideation-action gap is desperately needed. This is likely to a) outline the current ability of clinicians to accurately assess and predict suicide risk, b) understand factors that contribute to the transition from ideation to action to better understand

the suicidal process, and c) identify and understand sub-groups of suicide attempters who are likely to experience unique suicidal processes with unique markers for clinicians to attend to.

The suicidal continuum and ideation-action gap therefore represent the conceptual basis for the two articles nested within this thesis. Firstly, a systematic review is presented with the aim of identifying factors that distinguish high and low lethality attempters. This review is restricted to an older adult population specifically as this group is likely to be somewhat unique in their suicidal process. Secondly, an empirical study examines the ability of the standardised risk assessment employed nationally by Improving Access to Psychological Therapies (IAPT) services to distinguish ideators from those making a suicide attempt within two years of their assessment. Finally, a concluding chapter is presented that contextualises the body of work as a whole in the wider literature, proffers critiques, clinical implications and suggestions for future research, and offers a personal opinion on the limitations of risk factor research.

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## **Chapter Two**

### **What Distinguishes High and Low-Lethality Suicide Attempts in Older Adults? A Systematic Review and Meta-Analysis.**

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(Appendix a)**

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**What Distinguishes High and Low-Lethality Suicide Attempts in Older Adults? A Systematic Review and Meta-Analysis.**

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## **Abstract**

### **Background**

Those making more lethal suicide attempts differ from those making lower lethality attempts. Different factors influence the likelihood of a suicide attempt and the lethality of that attempt, with both being important dimensions of risk. Older adults represent a distinct group in suicide research with unique risk factors.

### **Aims**

Summarise factors that distinguish high and low-lethality suicide attempts in older adults.

### **Methods**

Databases PsycINFO, PubMed (MEDLINE), Embase and CINAHL were systematically searched with seven of 1180 unique records included. Random effects meta-analyses were conducted on 18 variables in addition to a narrative review.

### **Results**

Only suicidal intent and planning meaningfully distinguished high and low-lethality attempters in meta-analyses and a large effect size was additionally observed for white ethnicity. Age and gender were not associated with lethality. Narrative review suggested high-lethality attempters were less likely to act on suicidal urges, better able to plan more lethal attempts, and less likely to alter suicidal plans.

### **Limitations**

Meta-analyses were underpowered to detect small effect sizes, samples were largely white and limited to the US.

### **Conclusion**

Suicidal intent, planning, white ethnicity, and nuanced differences in executive function, are associated with more lethal suicide attempts in older adults, while age and gender are not.

### **Keywords**

Elderly, suicide, lethality, review, meta-analysis

Death by suicide accounted for 6517 deaths in the UK in 2018 (Office of National Statistics; ONS, 2019) and an estimated 700,000 deaths worldwide (World Health Organisation; WHO, 2021). Despite an exponential increase in the breadth of factors found to be predictive of suicide, suicide prediction remains little better than chance (Belsher et al., 2019; Lindh et al., 2020). Prior to a slight decline in the context of COVID-19 in 2021, suicide rates have been steadily rising in the USA and have not fallen in the UK in the last 10 years (National Institute for Mental Health, 2021; ONS, 2021) indicating the advances in research have not translated to clinical practice.

A confound of much suicide research to date is the comparison of non-suicidal to suicidal individuals. A meta-analysis (May & Klonsky, 2016) found that most established risk factors for suicide are mediated by the presence of suicidal ideation. In other words, they can predict suicidal ideation but do not differentiate those who think about suicide from those who act on suicidal thoughts. As such, when supporting a patient with suicidal thoughts, clinicians can draw on little empirical insight when evaluating suicide attempt risk.

A second difficulty in interpreting risk factor research is the heterogeneity of suicide attempters. Suicide attempts occur on a continuum of lethality (the medical harm resulting from the attempt) with high-lethality attempters consistently shown to differ from low-lethality attempters (Gvion & Levi-Belz, 2018). For example, female sex, younger age, and higher impulsivity are associated with low-lethality attempts while the opposite characteristics are associated with high-lethality attempts (Baca-García et al., 2001; Levi-Belz, Gvion & Apter, 2020). Research that amalgamates suicide attempters as a homogenous group is therefore unable to differentiate key risk factors for the most medically serious suicide attempts, which are the most accurate proxy for those who die by suicide (Gvion & Levi-Belz, 2018). Similarly, designs that compare high-lethality attempters to non-attempters are likely to highlight risk factors that may apply to both high and low-lethality attempters and miss group differences and interaction effects of these risk factors with lethality. Furthermore, previous suicide attempt lethality has been shown to be predictive of both likelihood and lethality of future suicide attempt in its' own right (Rojas et al., 2018). This has led to calls for research that compares high to low-lethality attempters directly and the introduction of lethality risk factors into clinical risk assessment (Levi-Belz et al., 2020).

The twin confounds of the ideation-action gap and heterogeneity of suicide attempters by lethality highlight that suicide should be conceptualised along a continuum of suicidal

behaviours which each have overlapping, but heterogenous, risk profiles. As such, suicide attempters should not be considered a homogenous group (DeJong et al., 2010). A group that is comparatively neglected in suicide research is older adults (WHO, 2020), despite increasingly ageing populations in most developed countries (Lee et al., 2018). The risk of death by suicide increases with age and the rate of suicide deaths in adults over 70 has been shown to be more than double that of the 15-49 age group (Roth et al., 2018; WHO, 2016). The true scope of suicidality is likely to be underestimated as older adults are less likely to report suicidal ideation and have their suicidal behaviour recognised by clinicians (Brenes et al., 2015; Schmutte & Wilkinson, 2020).

In addition to the risk conferred by their age, older adults face distinct stressors comparative to their younger counterparts. Murphy et al. (2015) found proximal stressors in older adult suicide attempters included bereavement, loss of physical or cognitive function, reduced personal dignity, and financial loss. These factors are mirrored in risk factors for suicide attempts in older adults which include disability (Cabello et al., 2020), severe physical illness (Pashkovskiy et al. 2017), and impaired decision making and cognition (Clark et al., 2011; Jackson et al., 2020). Similarly, risk factors for older adult who die by suicide include dementia (Choi et al., 2021), living alone (De Leo et al., 2001) and lack of a relative or friend to confide in (Turvey et al., 2002).

Compared to middle aged suicide attempters, studies suggest older adults have higher suicidal intent, more severe physical illness, lower quality of life, and higher likelihood of separation, divorce or widowhood (Jackson et al., 2020; Nieto et al., 1992; Pashkovskiy et al., 2018; Wiktorsson et al., 2021; Zhao et al., 2010). They have been found to be less likely to have ingested alcohol or misuse substances prior to their attempt and less likely to have a psychiatric diagnosis (Crandall et al., 2007; Wiktorsson et al., 2021). Impulsive and aggressive traits have also been found to be less predictive of suicide attempts in older, compared to younger, adults (McGirr et al., 2012). Additionally, Kim et al. (2021) found the most common reason given for suicide attempt differed between younger and older adults, with interpersonal problems most commonly cited in adults under 65 compared to physical illness in adults over 65. As such, older adults represent a distinct group with some unique suicidal risk factors and thus warrant age-specific research.

Beghi et al.'s (2021) review highlighted that the risk factors for non-fatal and fatal suicide attempts in older adults are not equivalent. The male: female ratio for suicide deaths

was found to be between 2.74:1 and 3:1, whereas females were more likely to make suicide attempts. Almeida et al. (2016) found the most common method for fatal suicide attempt was hanging (50.7%), compared to overdose in non-fatal attempted suicide (85%), and that a history of a previous suicide attempt predicted attempted suicide but not death by suicide. Furthermore, factors such as impulsivity have been shown to be positively correlated with suicide attempt likelihood but inversely correlated with lethality (Branley-Bell et al., 2019; Kim et al., 2018; Levi-Belz et al., 2020). The differential risk factors for non-fatal and fatal suicide attempt, and suicide attempt frequency and lethality, demonstrate that there may be fully or partially dichotomous distinctions in risk factors for the likelihood of a suicide attempt and the lethality of that attempt.

Risk is fundamentally conceptualised as the likelihood of an adverse outcome combined with the severity of harm of that outcome happening (Haimes, 2009). Recent reviews have explored the risk factors for the likelihood of suicide attempts, both within general older adult populations (Troya et al., 2019), and specific older adult groups (Fässberg et al., 2016; Lutz and Fiske, 2018; Murphy et al., 2015; Szücs et al., 2018). Beghi et al. (2021) additionally reviewed the literature on fatal and non-fatal suicide attempts in older adults, but again through the framework of likelihood. The present article therefore summarises the current literature regarding the risk factors for the second dimension of suicide attempt risk (lethality), adding to the existing research base on likelihood. This review explores the degree to which a range of studied variables could distinguish those making low and high-lethality suicide attempts. It aims to identify only studies that compare more lethal suicide attempts to less lethal suicide attempts (defined by the medical severity of their consequences) to identify lethality-specific risk factors. Studies were restricted to those specifically targeting older adults who are likely to represent a distinct population, and meta-analysis was employed to synthesise findings.

## **Method**

This systemic review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (Moher et al., 2009) and was pre-registered on PROSPERO: the international prospective register of systematic reviews (National Institute for Health Research & University of York, 2016) registration CRD42021236552.

### **Search Strategy**

Studies were included if a) Participant’s mean age was 60 or above (WHO, 2017) and they had made at least one defined suicide attempt (defined as a self-directed, potentially injurious behaviour with an intent to die; NIMH, 2021), b) study methodology facilitated quantitative comparison of more lethal suicide attempts to less lethal attempts, and c) work was original and available in English language. Unpublished studies, case studies, and studies absent of peer-review were excluded. A mean age of 60 was selected over an absolute cut-off due to the paucity of included studies. Mean age and standard deviations are presented in table two suggesting the number of participants below age 60 are unlikely to have confounded meta-analysis. The databases PsycINFO, PubMed (MEDLINE), Embase and CINAHL were searched with the terms outlined in table 1, with concepts combined with the Boolean operator AND. Reference lists and authors of studies included in the full text review stage were additionally hand searched. No restrictions were placed on the date of publication and final searches were conducted in January 2022.

**Table 1**

*Key concepts and search terms*

Concept	Search terms	Location
Suicide attempt	Suicide* N1 attempt* OR lethal* N4 self-harm OR lethal* n4 self harm OR successful N2 suicid*	Title
Lethality	(Lethal* OR sever* OR serious* OR death* OR die* OR committed or completed) N4 suicid*	Abstract
Older adult	Older adult* OR elderly OR old* age OR later N2 life	Full text

### **Study Selection**

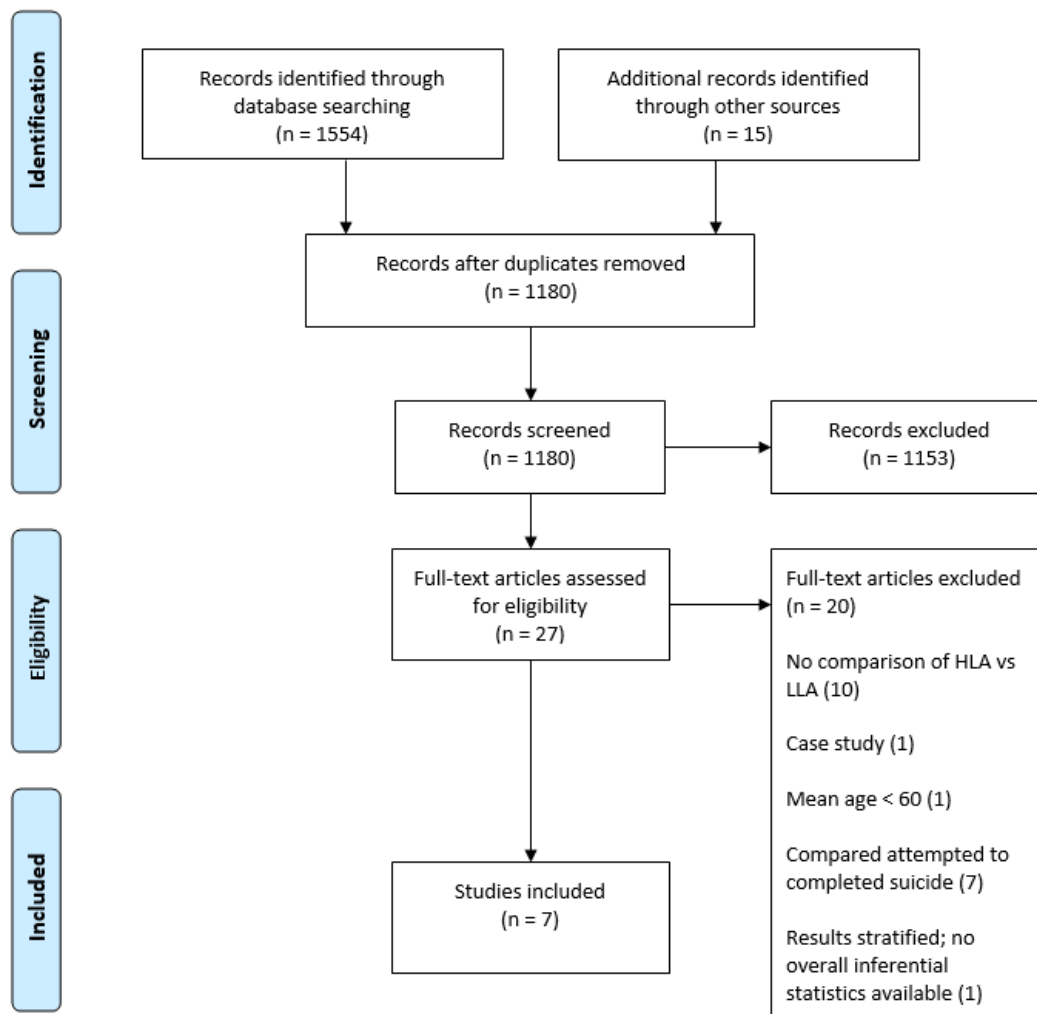
Titles and abstracts were screened by the first author with common reasons for exclusion including populations other than older adults, no data on attempt lethality and non-original work. Full text screening, according to outlined eligibility criteria, was conducted by the first and second authors independently with 100% agreement. Studies meeting inclusion criteria fell into two categories: those comparing high to low-lethality attempters (seven articles), and those comparing suicide attempters to suicide victims (seven articles). As these



comparisons are likely to entail overlapping, but not homogenous, risk factors, only those studies comparing high to low-lethality attempters were included.

**Figure 1**

*PRISMA diagram*



### Appraisal of Selected Studies

No validated gold standard tool exists for quality rating or bias risk assessment in cross-sectional studies and quality rating has been shown to differ based on the tool selected

(Moskalewicz & Oremus, 2020). Study quality and risk of bias was assessed using both the Newcastle-Ottawa scale (NOS; Wells et al., 2013) adapted for case control studies, in line with previous research (Herzog et al., 2013), and the Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross-Sectional Studies (Vardell & Malloy, 2013; JBI). The NOS is the most utilised quality rating tool for non-randomised studies (Farrah et al., 2019) and the JBI is recommended specifically for cross-sectional studies (Ma et al., 2020). The revised scale was initially piloted on a randomly selected study and refined accordingly through discussion. In line with Cochrane guidance (Higgins et al., 2019), included studies were independently rated by the first and second authors. Cohen's Kappa above .80 was observed for all variables on both the NOS and JBI, indicating substantial inter-rater agreement (Cohen, 1988). Disagreements were resolved by discussion.

### **Statistical Analysis**

Where two or more studies examining the same variable were identified, a meta-analysis was conducted following Valentine et al.'s (2010) guidance. Data was extracted pertaining to the degree to which each variable distinguished low and high-lethality suicide attempters. Effect sizes were either extracted directly or calculated from means and standard deviations, or proportions, and sample sizes. Data extraction was checked by the second author, with 100% agreement.

Meta-analysis was conducted using the software MAVIS, version 1.1.3. A more conservative random effects model was used as this approach accounts for true differences between studies in addition to differences between their sampled populations (Schmidt et al., 2009). The  $I^2$  statistic was used to assess heterogeneity for each study which is representative of the proportion of variability in effect sizes accounted for by between studies variance (Higgins & Thompson, 2002). An  $I^2$  statistic of below 50% suggests little difference between studies, 50-75% percent suggests some difference and above 75% suggests considerable differences (Higgins et al., 2003). An  $I^2 > 75%$  (von Hippel, 2015) was considered unacceptable and precluded a meaningful meta-analysis for that variable. In this case, results are discussed narratively. Where a study reported on a variable, but this could not be incorporated within an existing meta-analysis, these results are additionally provided narratively. Where a single study appeared to be an outlier, sensitivity analysis was conducted by rerunning the meta-analysis with that study removed. Outliers were screened using visual inspection of forest plots.

A two-tailed retrospective power calculation for each meta-analysis was conducted using the software R4.1.2 to provide the minimum effect size that would have been required to achieve a power of  $b = 0.80$ , considered adequate by convention (Valentine et al., 2010). This represents the smallest effect size required for a meta-analysis to be capable of rejecting the null hypothesis 80% of the time if an effect of that magnitude truly existed. Non-significant meta-analyses with inadequate power ( $b < .80$ ) to detect medium ( $d = .50$ ) effect sizes were considered unacceptably likely to miss-classify meaningful variables as non-significant so were considered inconclusive, with this threshold set a-priori.

## Results

### Study Characteristics

All studies were cross-sectional, dichotomously grouping high and low-lethality suicide attempters. Six studies from the USA used a cut-off score of four on the Beck Lethality Scale (Beck et al., 1975, BLS) to distinguish high and low lethality suicide attempters, based on their most serious attempt. Wiktorsson et al. (2016) used hospitalization for at least 24 hours as a lethality threshold pertaining to a recent suicide attempt (median 11 days). Studies included 202 low-lethality attempters and 163 high-lethality attempters in total. Overall, 52.61% of participants were male and mean age was 68.74. In the five studies reporting on ethnicity, 89.13% of participants were white.

**Table 2**

*Study characteristics*

Study (Country) Setting	Study Design	<i>n</i> Participants	Mean Age (SD) and Lower Bound Recruitment Cut-off	Variables Studied	Key Findings	Quality Rating
Dombrovski et al. 2011  (USA)  Community	Cross- sectional	LLA = 14  HLA = 15	LLA = 66.1 (8.1)  HLA = 67.4 (7.1)  > 60 years	Decision making biases  Suicidal ideation Psychiatric morbidity Global cognitive functioning	HLA scored significantly higher on suicidal intent and planning subscales, were more willing to delay future rewards and attempt planning was associated with	NOS: Good (8)  JBI: 7

				Suicidal stressors Suicide attempt history	willingness to delay rewards.	
McGirr et al. 2012  (USA)  Inpatient psychiatric hospital	Cross- sectional	LLA = 20  HLA = 14	LLA = 66.80 (8.15)  HLA = 68.86 (7.53)  > 60 years	Cognitive flexibility  Suicidal ideation Global cognitive functioning Psychiatric morbidity	HLA exhibited poorer cognitive flexibility	NOS: Very good (9)  JBI: 8
Richard- Devantoy et al. 2015  (USA)  Psychiatric inpatient and community	Cross- sectional	LLA = 14  HLA = 17	LLA = 64.4 (3.5)  HLA = 69.3 (6.5)  > 60 years	Cognitive inhibition  Global cognitive functioning Suicidal ideation Suicidal stressors Psychiatric morbidity	No significant differences observed between HLA and LLA attempters across any variable	NOS: Good (8)  JBI: 8
Szanto et al. 2014  (USA)  Psychiatric inpatient and community	Cross- sectional	LLA = 20  HLA = 26	LLA = 62.5 (6.4)  HLA = 62.8 (10.1)  > 42 years	Cognitive control in social decision making  Suicidal ideation Impulsivity Suicidal stressors Global cognitive functioning Psychiatric morbidity	HLA exhibited higher suicidal intent  HLA did not differ in rejection of high and low magnitude offers but LLA did, being less likely to reject higher magnitude offers	NOS: Good (8)  JBI: 8
Szanto et al. 2015  (USA)  Psychiatric inpatient and community	Cross- sectional	LLA = 29  HLA = 31	LLA = 62.0 (7.4)  HLA = 64.0 (9.6)  > 42 years	Susceptibility to decision biases  Psychiatric Morbidity Global cognitive functioning Impulsivity Suicidal stressors Suicidal ideation Suicide attempt history	LLA more susceptible to sunk cost than HLA	NOS: Good (7)  JBI: 8

Vanyukov et al. 2017 (USA) Community	Cross-sectional	LLA = 32 HLA = 32	LLA = 61.25 (7.1) HLA = 65.50 (11.0) > 42 years	Perceived burdensomeness Suicidal stressors Suicidal ideation Impulsivity Executive function Suicide attempt history Psychiatric morbidity	Perceived burdensomeness was higher in LLA HLA exhibited higher suicidal intent	NOS: Good (8) JBI: 7
Wiktorsson et al. 2016 (Sweden) Emergency department	Cross-sectional	LLA = 73 HLA = 28	LLA = 79.8 HLA = 79.5 > 70 years $\sigma$ not reported	Suicidal stressors Global cognitive functioning Psychiatric morbidity Suicide attempt history	HLA were more likely to attribute the reason for their suicide attempt to social problems or impaired autonomy LLA were more likely to not give a specific reason for their suicide attempt or report wanting to die or sleep HLA had higher anxiety severity and lower global cognitive functioning	NOS: Satisfactory (6) JBI: (6)

*Note. LLA = low lethality suicide attempt, HLA = high lethality suicide attempt. NOS = Newcastle Ottawa Scale adapted for cross-sectional studies, an overall score of 0-4 points is equivalent to unsatisfactory, 5-6 equivalent to satisfactory, 7-8 equivalent to good and 9-10 equivalent to very good. JBI = Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross-Sectional Studies (range 0 – 8 points).*

### **Study Quality and Risk of Bias**

Study quality ranged from very good to satisfactory on the NOS, and from six to eight points on the JBI. Only McGirr et al. (2012) justified sample size with a power calculation and only Wiktorsson et al. (2016) provided data on response rates and non-responders. The classification of suicide attempts into high- and low-lethality groups was corroborated with medical records in five studies with Szanto et al. (2015) and Wiktorsson et al. (2016) not specifically reporting attempt history corroboration. Validated instruments were used to measure primary outcomes in all studies except Wiktorsson et al. (2016) who used semi-structured interview. All studies incorporated sensitivity analysis or controlled for

confounding variables. Four studies specified 60 or over as a minimum age with the means and standard deviations of the remaining three studies suggesting some adults under 60 were included.

### **Lethality Correlates**

Results of meta-analyses are presented in table 3 and grouped into sociodemographic characteristics, psychiatric morbidity, cognitive variables, suicidal ideation, suicide history, and stressors, for discussion. Meta-analysis was feasible for a total of 18 variables, 16 of which were distal with only suicidal intent and planning explored proximally. Meta-analyses were powered to detect a minimum of small to medium effect sizes in all variables other than intelligence, impulsivity, substance use disorder, alcohol use disorder, intensity of pharmacotherapy and planning. No analysis was powered to detect small effect sizes smaller than  $d = .30$ .

**Table 3**

*Meta-analysis of extracted variables*

Variable	<i>k</i> Studies	<i>n</i> LLA	<i>n</i> HLA	Weighted Effect Size ( <i>d</i> ) [95% confidence interval]	<i>P</i> Value	% <i>I</i> <sup>2</sup>	Smallest Reliably Detectable Effect size ( <i>d</i> )
Age	7 Dombrovski et al., 2011 McGirr et al., 2012 Richard-Devantoy et al., 2015 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017 Wiktorsson et al., 2016	202	163	0.22 [.02, .44]	.039*	0.00	.30
Alcohol use disorder	2 McGirr et al., 2012 Wiktorsson et al., 2016	93	42	-.33 [-.70, .04]	.080	0.00	.54
Burden of medical illness	4 Richard-Devantoy et al., 2015 Vanyukov et al., 2017 Dombrovski et al., 2011 Wiktorsson et al., 2016	133	92	-.12 [-.39, .16]	.619	0.00	.39

Depression severity	7 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017 Dombrovski et al., 2011 McGirr et al., 2012 Richard-Devantoy et al., 2015 Wiktorsson et al., 2016	202	163	-.19 [-.41, .03]	.090	5.38	.31
Education	6 McGirr et al., 2012 Richard-Devantoy et al., 2015 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017 Dombrovski et al., 2011	129	135	-.23 [-.49, .04]	.097	14.86	.38
Gender (Male)	7 Wiktorsson et al., 2016 Dombrovski et al., 2011 McGirr et al., 2012 Richard-Devantoy et al., 2015 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017	202	163	.06 [-.15, .27]	.575	0.00	.40
Global cognitive functioning	7 Szanto et al., 2014 Szanto et al., 2015 McGirr et al., 2012 Richard-Devantoy et al., 2015 Dombrovski et al., 2011 Vanyukov et al., 2017 Wiktorsson et al., 2016	202	163	-.19 [-.45, .07]	.155	29.86	.42
Impulsivity	3 Szanto et al., 2014 Vanyukov et al., 2017 Szanto et al., 2015	81	89	-.09 [-.49, .32]	.637	43.47	.59
Intelligence	2 Szanto et al., 2015 Vanyukov et al., 2017	61	63	-.02 [-.37, .33]	.918	0.00	.51
Intensity of pharmacotherapy	4 Wiktorsson et al., 2016 Dombrovski et al., 2011 McGirr et al., 2012 Szanto et al., 2015	136	88	.16 [-.25, .58]	.441	51.66	.57

Interpersonal aggression	3 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017	81	89	-.16 [-.47, .14]	.287	0.00	.44
Interpersonal ambivalence	3 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017	81	89	-.10 [-.40, .20]	.512	0.00	.44
Interpersonal sensitivity	3 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017	81	89	-.20 [-.50, .10]	.200	0.00	.44
Substance use disorder (current)	3 Szanto et al., 2015 Dombrovski et al., 2011 McGirr et al., 2012	63	60	-.17 [-.53, .19]	.353	0.00	.52
Substance use disorder (lifetime)	4 Richard-Devantoy et al., 2015 Santo et al., 2015 Vanyukov et al., 2017 Dombrovski et al., 2011	89	95	-.12 [-.41, .17]	.409	0.00	.42
Suicidal ideation	5 Szanto et al., 2014 Szanto et al., 2015 Vanyukov et al., 2017 McGirr et al., 2012 Richard-Devantoy et al., 2015	115	120	.14 [-.12, .40]	.283	0.00	.37
Suicidal intent	6 Richard-Devantoy et al., 2015 Szanto et al., 2015 McGirr et al., 2012 Dombrovski et al., 2011 Szanto et al., 2014 Vanyukov et al., 2017	129	135	.69 [.33, 1.05]	<.001*	50.02	.49
Suicidal planning	3 Dombrovski et al., 2011 Vanyukov et al., 2017 Szanto et al., 2015	75	78	.73 [.40, 1.06]	<.001*	0.00	.80

*Note. LLA = low lethality suicide attempt, HLA = high lethality suicide attempter, \* =  $p < .05$ .  $d > 0$  indicates a higher weighted mean variable score in the HLA group. Large effects are indicated by  $d \geq .80$ , with medium, small and negligible effects corresponding to .50 - .79, .20 - .49 and  $\leq .20$  respectively (Cohen, 1988).*



### ***Sociodemographic Characteristics***

Meta-analyses found no significant difference between high and low-lethality groups for gender. While meta-analysis of pre-morbid intelligence and education years was underpowered, effect size confidence intervals suggested a negligible to small effect of education years, although not reaching statistical significance. As only one study (Wiktorsson et al., 2016) found a greater proportion of females in the high-lethality group, meta-analysis was repeated with this study excluded. Gender remained un-associated with lethality ( $p = .235, d = .15, I^2 = 0\%$ ). High-lethality attempters were more likely to be older with a small effect size.

Individual studies found no association with lethality in relation to living alone (Wiktorsson et al., 2016), perceived social support (Vanyukov et al., 2017) or loneliness (Wiktorsson et al., 2016). Three studies found no effect of socioeconomic status with unacceptable heterogeneity for meta-analysis ( $I^2 = 96.94$ ).

Five studies reported on race (table 4), classifying participants as white or non-white. Szanto et al. (2015) and Vanyukov et al. (2017) found a higher percentage of participants in the high-lethality group were white with large effect sizes ( $p < .001, d = 1.14$  and  $p = .003, d = .78$ , respectively). Three further studies reported fewer white participants in the low-lethality group but as all high-lethality participants were white, effect sizes were incalculable.

**Table 4**

#### *Ethnicity of participants by lethality*

Study	LLA % white (n)	HLA % white (n)
Dombrowski et al., 2011	71.43 (10)	100 (15)
Richard Devontoy et al., 2015	85.71 (12)	100 (17)
Szanto et al., 2015	79.31 (23)	96.77 (30)
Szanto et al., 2014	85.00 (17)	100 (26)
Vanyukov et al., 2017	78.13 (25)	93.75 (30)
Overall	79.82 (87)	97.52 (118)

Note. LLA = low-lethality attempter, HLA = high-lethality attempter

### ***Psychiatric Morbidity***

Meta-analyses found the prevalence of lifetime substance use disorder and depression severity did not significantly differ between high and low-lethality attempters, but effect size confidence intervals suggested a negligible to small effect for depression severity. Meta-analysis of intensity of pharmacotherapy and prevalence of alcohol and substance use disorders were underpowered (and non-significant) but confidence intervals suggested a negligible to medium effect for alcohol use disorder.

In individual studies not included in meta-analysis, McGirr et al. (2012) found no association between lethality and panic disorder, generalised anxiety disorder (GAD), post-traumatic stress disorder (PTSD), or specific phobia. Wiktorsson et al. (2016) found no association between lethality and depression, or dementia diagnosis and Szanto et al. (2014) reported no effect of GAD, panic disorder, PTSD or OCD. Vanyukov et al. (2017) and Wiktorsson et al. (2016) found no effect of depression age onset or history of psychiatric treatment. Wiktorsson et al. (2016) was the only study to assess anxiety severity and found scores on the Brief Scale of Anxiety (Tyrer et al., 1984) were higher in the high lethality group compared to the low lethality group ( $p = .025$ ,  $d = .51$ ).

### ***Global Cognitive Functioning and Impulsivity***

Meta-analysis found no association of global cognitive functioning with lethality. Four studies (Szanto et al., 2014, Szanto et al., 2015, McGirr et al., 2012 and Richard Devontay et al., 2015) excluded participants based on low mini mental state examination scores ( $< 24$ ). To investigate the possibility of a threshold effect, meta-analysis was repeated including only the three studies with no cognitive exclusion criteria (Dombrovski et al., 2011, Vanyukov et al., 2017 and Wiktosson et al., 2016). The effect of global cognitive functioning on lethality remained non-significant ( $p = .207$ ,  $d = .28$ ,  $I^2 = 48.92\%$ ) but analysis was inadequately powered to detect effect sizes below  $d = .59$ . Meta-analysis of trait impulsivity was underpowered.

### ***Executive Function***

Meta-analysis of executive function including five studies (Dombrovski et al., 2011, McGirr et al., 2012, Richard-Devontoy et al., 2015, Szanto et al., 2015 and Vanyukov et al., 2017) indicated an unacceptable degree of heterogeneity ( $I^2 = 87.45$ ). This suggested the

constructs measured could not be combined into a composite variable. As six studies explored executive function, a narrative synthesis was conducted.

Vanyukov et al. (2017) compared scores on the Executive Interview (Royall et al., 1992; EXIT), a broad assessment of executive functioning, and found no difference between high and low lethality suicide attempters ( $p = .298$ ,  $d = 0.26$ ). McGirr et al. (2012) used the Wisconsin Card Sorting Test (Kongs et al., 2000), finding low-lethality attempters made fewer errors and fewer preservative errors. High-lethality attempters were less able to flexibly shift their responses to adapt to new rules and demonstrated poorer conceptual understanding of the task.

Szanto et al. (2015) examined susceptibility to decision biases using the Adult-Decision Making Competence Scale (de Bruin et al., 2007). They found that low-lethality attempters were more susceptible to sunk cost biases, chasing unrecoverable losses ( $p < .002$ ,  $d = .84$ ). As the test of sunk cost bias is more influenced by negative affect such as anger and anxiety (Coleman, 2010; Moon et al., 2003) than the three other decision domains investigated, the authors concluded that high-lethality attempters were less influenced by negative affect in their decision-making process.

Dombrovski et al. (2011) found that high lethality attempters exhibited a greater preference for larger but delayed financial rewards, compared to low lethality attempters who preferred immediate but smaller rewards ( $p < .001$ ,  $d = 1.37$ ), using Kirby's Monetary Choice Questionnaire (Kirby, 1999; MCQ). Richard Devontay et al. (2015) utilised the Color-Word Interference (CWIT) subtest of the Delis–Kaplan Executive Function System (Delis, 2001, DKEFS), finding that high-lethality attempters took longer to complete the inhibition condition but with fewer uncorrected errors but that these differences did not reach significance.

Szanto et al. (2014) investigated differences in self-perceived unfairness in decision making between high and low lethality attempters using the ultimatum game paradigm (Güth et al., 1982; UG). An interaction between group and offer magnitude suggested that while low lethality attempters were less likely to reject unfair offers as the total reward increased, high lethality attempters continued to reject unfair offers regardless of the total reward ( $p < .001$ ). High lethality attempters consequently received less rewards than their low lethality counterparts. Post-hoc analysis found that low but not high-lethality attempters perceived higher magnitude offers as fairer.

### ***Suicidal Ideation***

Suicidal ideation was measured at the time of assessment with the Scale of Suicidal Ideation (Beck et al., 1979). Suicidal intent was measured pertaining to participants most lethal lifetime suicide attempt using the Suicidal Intent Scale (Beck et al., 1974) with the planning subscale specifically reported in three studies. Meta-analyses found suicidal ideation was not associated with lethality but both suicidal intent and planning scores were higher in high-lethality attempters with medium effect sizes.

### ***Suicide History***

Individual studies found no association between lethality and number of lifetime suicide attempts (Szanto et al., 2015, Wiktorsson et al., 2016), age of first attempt (Dombrovski et al., 2011; Szanto et al., 2015), age of most lethal attempt (Dombrovski et al., 2011) or family history of suicide (Wiktorsson et al., 2016).

### ***Stressors***

Meta-analysis found no association between medical illness burden and lethality with an additional study by Szanto et al. (2014) reporting no effect of medical illness burden. Meta-analyses found no association between lethality and the three subscales of the Inventory of Interpersonal Problems (Horowitz et al., 1988).

In individual studies, Vanyukov et al. (2017) found no association between lethality and scores on the anger-rumination scale (Sukhodolsky et al., 2001) but that perceived burdensomeness was higher in lower lethality attempters ( $p < .05$ ), and negatively associated with planning ( $p = .09$ ). Wiktorsson et al.'s (2016) content analysis of semi-structured interviews regarding the reasons for attempting suicide found social problems ( $p = .043$ ) and impaired functioning and autonomy ( $p = .037$ ) were more common in the high-lethality group while a desire to sleep or die without a specific reason was more common in the low-lethality group ( $p = .017$ ).

## **Discussion**

This review aimed to explore the degree to which a range of studied variables could distinguish those making low and high-lethality suicide attempts. Study quality was generally rated as high, and risk of bias was largely well accounted for by a combination of statistical analysis of cofounds in individual studies and sensitivity analysis within meta-analytical

review. Lethality risk factors and null findings are initially summarised drawing upon both meta-analyses and individual included studies that were incompatible with our meta-analyses.

### **Summary of Lethality Risk Factors**

Meta-analyses distinguished high and low-lethality attempters on only three variables: age (small effect) and suicidal intent and planning (medium effects). White ethnicity was consistently associated with high lethality attempters with a large effect size in all studies identified in this review. No other sociodemographic variables were associated with lethality with gender and intelligence un-associated in our meta-analyses and individual studies finding no effect of socioeconomic status. Similarly, meta-analysis found no association with burden of physical illness and lifetime prevalence of substance use disorder, and no individual study reported an effect of any psychiatric diagnosis. Global cognitive functioning and interpersonal difficulties were found to have no effect on lethality in our meta-analysis. Meta-analyses of impulsivity, intelligence, intensity of pharmacotherapy, current substance use disorder and alcohol use disorder was underpowered limiting the interpretability of non-significant findings. However, confidence intervals suggested alcohol use disorder is likely to be more prevalent in low-lethality attempters.

Four further findings could not be incorporated in a meta-analysis. Wiktorsson et al. (2016) was the only study to explore reasons given for suicide attempts finding low lethality attempters gave less specific reasons for their attempt while high-lethality attempters were more likely to attribute their attempt to diminished autonomy and social problems. Vanyukov et al. (2017) additionally found low lethality attempters reported lower perceived burdensomeness. Neither of two studies found suicide attempt history to correlate with lethality. Differences were also found by individual studies across a range of executive function domains with high-lethality attempters less prone to emotional biases, better able to delay gratification and displayed poorer performance in flexibility shifting their thinking and responses to adapt to new information.

### **Implications for Theory and Directions for Future Research**

Null findings of meta-analyses (other than those specified as underpowered) should be interpreted as suggesting it is unlikely that a specific variable independently and meaningfully distinguishes high and low-lethality attempters. All meta-analyses were underpowered to comment on small effects and confidence intervals suggested alcohol use

disorder, depression severity, education and global cognitive functioning may be targets for future research. Variables are discussed in the context of contemporary suicide theory with tentative novel theories of lethality proposed as avenues for future research to explore and refine.

### ***Sociodemographic Variables***

Two sociodemographic characteristics differentiated low and high-lethality attempters, age and ethnicity. High lethality attempters were older, although this effect was small. In adults, those who die by suicide have been shown to be older than those making non-fatal suicide attempts (Beautrais, 2001), and adolescents and young adults have been shown to make less lethal attempts than their middle-aged counterparts (Fushimi et al., 2006). However, Kim et al. (2021) found attempt lethality did not differ in those over versus under 65 and both Kang et al. (2019) and Jackson et al. (2020) found ageing did not predict lethality in older adults specifically (but did in middle aged adults). Dombrovski et al. (2008) compared middle aged to older adults finding attempt lethality increased with age in men but decreased in woman. However, in these studies, and in our review, age refers to the time of participation rather than the age at which the attempt occurred. Given the average age of participants in our review was 68.74, and three studies included participants under 60, it is possible that the small effect of age is explained by attempts that occurred before the age of 60. As such, there is little evidence that lethality continues to increase with age in older adulthood.

The overall proportion of participants with white ethnicity followed population trends for low-lethality participants given 59.8% of the US population was white (US Census Bureau, 2021) and suicide rates in over 65s of white ethnicity were 1.12 times higher than the population overall (Centers for Disease Control and Prevention). However, the high lethality group was almost entirely white representing a large effect size. Attitudes, expression of ideation, stigma, stressors, and protective factors have been shown to vary across cultures (Stack & Kposowa, 2016), with different meanings attached to suicidal behaviours. Specifically in the US, research has attributed the lower suicide rates among African Americans to mutual support and social cohesion derived from family, religion, shared values, and extended support networks (Compton et al., 2005). It would be unlikely that these cultural variations would not play a role in the development of suicidal intent and planning in older adults which this review did find to be associated with lethality. Further

research exploring cultural risk factor interactions, and lethality risk factors in non-white populations is therefore indicated.

Male sex was not associated with lethality despite having been consistently shown to be associated with suicide deaths in adult samples. Males have been shown to make fewer but more lethal attempts in adulthood (Choo et al., 2019; Han et al., 2016; Pavarin et al., 2014) while attempt lethality is associated with future death by suicide and future attempt lethality (Giner et al., 2014; Trakhtenbrot et al., 2016). As such, one might expect a greater proportion of the most serious male suicide attempters to have died before older adulthood, either from suicide directly or from the plethora of poor health outcomes related to suicide attempts (Demesmaeker et al., 2021). The association of sex with suicide attempt lethality may therefore be expected to weaken with age as found in our analysis. The exemplar of gender poses the question of the generalisability of other trait suicide risk factors from adults to older adults through similar mechanisms.

Suicide death rates have been found to be higher in older adult males compared to females with the reverse true for suicide attempts, and this disparity is starker in older adulthood (Beghi et al., 2021). May and Klonsky's (2016) meta-analysis found female sex was comparatively more prevalent in both those with suicidal ideation compared to non-suicidal participants and those making suicide attempts comparative to those with suicidal ideation. Our meta-analysis suggests, in older adults specifically, low and high-lethality attempters are not differentiated by sex. As such, in older adults specifically, the risk of suicide conferred by male sex appears to be operationalised in the transition from serious attempt to suicide death. Given the majority of those who die by suicide do so on their first attempt (Han et al., 2016; Shibre et al., 2014; Yook et al., 2021), and are therefore not included in studies of suicide attempters, this exemplar additionally highlights the importance of conceptualising suicidal behaviours as non-homogenous with distinct risk profiles predicting the transition from low-lethality to high-lethality attempt, and to death by suicide.

### ***Psychiatric Morbidity and Suicidal Stressors***

No measure of psychiatric morbidity or distress was associated with lethality in our meta-analysis including depression severity, intensity of psychopharmacotherapy and substance use disorder. This finding should however be caveated in that only depression severity encompassed adequate power and both alcohol use disorder and depression severity evidenced a small (but non-significant) effect. No individual study found an association of

any psychiatric diagnosis with lethality. Although caution should be taken in the weight given to underpowered null findings, the observed pattern is consistent with contemporary ideation-action theories of suicide that suggest the presence and intensity of internal psychological distress contributes to the development of suicidal ideation but does not predict the transition to suicide attempt (Joiner; 2005; O'Connor, 2011); a perspective further supported by May and Klonsky's (2016) meta-analysis.

Interestingly meta-analysis found physical illness burden did not differ between high and low lethality attempters despite often being cited as an explanation for the increased suicide rates in older adults. Vanyukov et al. (2017) found perceived burdensomeness was lower in high lethality attempters, was negatively correlated with planning, and not associated with physical illness burden. As such, attempts motivated by feelings of burdensomeness may be less planned and lethal but replication is required.

### ***Executive Function***

Suicidal behaviour has previously been robustly linked to diminished problem-solving abilities, impaired executive function, and impaired decision making in older adults (Conejero et al., 2018; Perrain et al., 2021), while the suicidal act can be considered as a solution to unbearable internal distress (Gibbs et al., 2009; Harrison et al., 2010). Studies in our narrative review examining executive function supported a two part-theory that a) high-lethality suicide attempters are less prone to acting on suicidal urges driven by emotional distress and thus their attempts are likely to be better planned and more lethal and b) cognitive inflexibility in high-lethality attempters may leave them less likely to find alternative solutions to their distress once a suicidal plan has been conceptualised, and less likely to alter their suicidal plan once it has been made.

Compared to non-suicidal or depressed controls, suicide attempters display poorer emotion regulation, an enhanced proclivity to act in highly emotional situations and focus on immediate rather than future outcomes (Baek et al., 2017; Hegedús et al., 2018; Jollant et al., 2011). However, these samples were largely low-lethality attempters, and the direct comparisons of our included studies presents an intriguing dissociation. Szanto et al. (2015) found attempters in the high-lethality group were less likely to be unduly influenced by negative affect (anger and anxiety) and were less likely to chase irrecoverable losses, which has been linked to rumination on painful past experiences (Van Putten et al., 2010). Dombrovski et al. (2011) found high-lethality attempters were also better able to delay



gratification for greater future rewards, contrary to the immediate outcome focus exhibited by low-lethality attempters versus non-suicidal controls in Baek et al.'s (2017) study. As such high-lethality attempters specifically appear better able to resist both aversive and positive (rewarding) immediate behavioural drivers in the service of future goals. Given our meta-analytical finding that both suicidal intent and planning were associated with high-lethality attempters, we hypothesise that high-lethality attempters specifically, better resist immediate (emotional) suicidal urges; enabling delayed, better planned attempts that are more likely to be lethal. Congruent with this theory, persistence in painful tasks has been shown to be more pronounced in attempters compared to ideators (Anestis et al., 2016; Law et al., 2017), suggesting the ability to ignore aversive sensory and emotional experiences moves one further along the suicidal continuum.

Supportive of the second half of this theory, Szanto et al. (2014) found high lethality attempters did not adaptively alter their perception of fairness or rejection behaviour with offer magnitude, despite being less well rewarded. Congruently, McGirr et al. (2012) found high lethality attempters struggled to adapt to new task rules, further suggesting cognitive inflexibility and Richard-Devontay et al. (2015) found high lethality attempters made fewer errors but took longer in a task testing cognitive inhibition suggesting a slower but more deliberate approach. Diminished problem solving (or generation of alternative solutions) has been consistently associated with suicidality (Conejero et al., 2018) and the inability to modify choices has been found in high-lethality versus low-lethality attempters specifically (Gvion and Levi-Belz, 2018). As such, we hypothesise once a suicidal plan has been made, high lethality attempters may be less likely to find an alternative solution to their distress and less likely to be dissuaded from their plan by emotional cues.

Further supporting this theorem, impaired decision making (a component of executive functioning) has been found to be associated with more violent suicidal methods (Gorlyn et al., 2013; Jollant et al., 2005; Wyart et al., 2016). Additionally, the association between executive function impairment and lifetime suicidality is strongest with task variations with more certain outcome probabilities (Deisenhammer et al., 2018), mirroring the certainty provided by the methods used in the most lethal and violent suicide attempts. Furthermore, Useda et al. (2007) evidenced that suicide victims had higher trait conscientiousness (associated with impulse control, planning and inflexibility) than treatment seeking suicide attempters in a sample of adults aged over 50. Sastre-Buades et al.'s (2021) review concludes

impaired decision making in suicidal individuals is also stable trait, further suggesting high and low-lethality attempters are distinct populations with distinct attempt mechanisms. As participants were tested after their suicide attempt, one might conceivably argue that the suicidal act itself habituates one to emotional distress in line with acquired capability theories (Joiner, 2005). We assert this two-part theory represents an intriguing avenue for future research and may benefit from longitudinal exploration.

### **Clinical Implications**

Clinicians should be aware that older adult suicide attempters are not a homogenous group. When assessing risk, it should be considered that white ethnicity may be a risk factor for higher lethality attempts alongside increased suicidal intent and planning, while gender and further ageing may not enhance suicide lethality in older adults. Older adults who appear more reactive to situational or emotional stressors may be more prone to lower lethality suicide attempts while those most at risk of high-lethality attempts may appear less reactive and their risk underestimated.

### **Limitations**

This review benefitted from its systematic design and detailed review of included studies. Although variables that independently and meaningfully distinguishing high and low lethality attempters are likely to have been captured, the analysis is unable to comment on small effect sizes which may be indicative of interactions and future research directions. While quality was generally high, the studies, and by extension the findings this review, are cross-sectional and have limited ability to infer causality. Furthermore, only suicidal intent and planning were explored relative to the suicide attempt itself and all other variables refer to time of assessment rather than at the time of the attempt. Three studies included participants aged below 60 and the sample of high-lethality attempters was almost exclusively white, with six of seven studies from the USA, limiting the generalisability to non-white-American populations. Suicide victims were excluded by design and in the context of evidence that non-fatal and fatal suicide attempters are not homogenous groups, care should be taken in generalising these findings to suicide deaths.

### **Conclusions**

Very few trait factors were associated with lethality. Male gender was not associated with lethality contrary to a higher male: female ratio in suicide deaths, indicating high

lethality attempters and suicide victims are not homogenous groups. Increased suicide attempt lethality in older adults is unlikely to be explained by physical or mental disease burden. High lethality attempters were more likely to be white and endorse a higher degree of intent and planning in their attempt. High and low-lethality attempters may have different pathways to attempt with tentative evidence suggesting high lethality attempters may be less prone to acting impulsively on suicidal urges and less likely to deviate from suicidal plans. Future research should strive to explore these theories in addition to identifying what differentiates high and low-lethality attempts within an individual, exploring proximal risk factors, and aiming to incorporate cultural factors into contemporary models of suicide. Alcohol use disorder, depression severity, education and global cognitive functioning are promising candidate variables for future research.

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**Chapter Three:**  
**Bridging Chapter**

**Word Count: 180**

The presented systematic review outlines factors that might differentiate groups at the latter end of the suicidal continuum, namely those making high lethality compared to low lethality suicide attempts. It outlines the value of comparing one group to the next along the continuum, to elucidate not just general risk factors for suicide, but specific factors that might differentiate one group from the next. Congruent with this conceptual stance, the following empirical paper presents group comparisons between three points on this continuum: non-suicidal controls, those with suicidal ideation and those attempting suicide. Crucially, this allows the examination of factors that differentiate ideators and attempters specifically, arming clinicians with knowledge of what to attend to when assessing risk in individuals presenting with suicidal ideation.

In a similar manner to the systematic review, the empirical paper targets a specific population, namely Improving Access to Psychological Therapies (IAPT) with the goal of revealing specific risk factors for those attending IAPT assessments; a population who are not representative of the general population or the overall population of those making suicide attempts by age or gender.

## **Chapter Four**

# **The IAPT Phobia Scale Predicts Suicide Attempt within Two Years: An Exploration of the Ability of the IAPT Risk Assessment to Bridge the Ideation-Action Gap**

**Prepared for submission to The British Journal of Clinical Psychology (Appendix A)**

**Word Count: 4998**



## **The IAPT Phobia Scale Predicts Suicide Attempt within Two Years: an Exploration of the Ability of the IAPT Risk Assessment to Bridge the Ideation-Action Gap**

### **Short Title:**

*Exploring the Ideation-Action Gap within IAPT*

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### **Keywords:**

Ideation-action, suicide, acquired capability, IAPT

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conflicts of interest.

## **Abstract**

### **Objectives**

To test the ability of the Improving Access to Psychological Therapies (IAPT) risk assessment to distinguish those with suicidal ideation from those who made a suicide attempt within the following two years.

### **Design**

Record linkage using pre-existing data with longitudinal follow up.

### **Methods**

$N = 85$  participants making suicide attempts within two years of IAPT assessment were identified using record linkage of NHS trust incident reports. A further 2159 IAPT assessment records were randomly selected, forming two further comparison groups, non-suicidal controls ( $n = 1416$ ) and (ideators,  $n = 743$ ). IAPT assessment electronic records and clinical risk assessments were coded for variables of interest.

### **Results**

A disclosure of a historical suicide attempt or non-suicidal self-injury (NSSI) distinguished those making an attempt within the following two years from those with suicidal ideation only. Double the proportion (7.06 %) of those making an attempt disclosed a suicidal plan compared to ideators but no differences were found in active suicidal ideation (with suicidal intent) compared to passive suicidal ideation (non-specific death wish). The IAPT phobia scale predicted 46.36% of the total variance in suicide attempt, correctly classifying 49.30% of attempters with 100% specificity. A two-point increase tripled the odds of a suicide attempt.

### **Conclusions**

The IAPT phobia may have clinical value as IAPT risk assessment but requires validation. Past suicide attempt and NSSI have better clinical risk assessment utility than current suicidal ideation intensity but a third of patients do not disclose past suicidality.

### **Practitioner points**

- The IAPT phobia scale may strongly predict suicide risk within two years
- A disclosure of a past suicide attempt at IAPT assessment doubled the odds of a suicide attempt within the following two years but a third of IAPT patients do not disclose past suicidality at assessment.
- The intensity of current suicidal ideation is a poor basis for risk assessment.

Suicide is widely accepted as a critical public health challenge with an estimated 700,000 deaths a year globally (World Health Organisation; WHO, 2021). Despite an exponential growth in suicide research, and the implementation of suicide prevention strategies (Bagley et al., 2010; Bryan et al., 2015), suicide rates have remained level in the UK and increased by 35% in the US in the last decade (National Institute for Mental Health, NIMH, 2021; Office for National Statistics, ONS, 2019). Furthermore, our ability to predict suicide is no better than it was 50 years ago (Franklin et al., 2017).

A key confound of risk prediction is the ideation-action gap. Despite the identification of myriad risk factors for suicide including non-suicidal self-injury (Maniglio, 2011, NSSI), psychiatric disorder (Hubers et al., 2018) and hopelessness (Verrocchio et al., 2016), research has shown that the vast majority of these risk factors can predict suicidal ideation (in comparison to non-suicidal populations) but fail to differentiate individuals with ideation from those who act on suicidal thoughts. May and Klonsky's (2016) meta-analysis found only post-traumatic-stress disorder (PTSD), anxiety disorders, drug use disorders and sexual abuse history were capable of meaningfully distinguishing suicide attempters and ideators. Practically, clinicians are therefore faced with large numbers of patients presenting with suicidal ideation and few empirically supported risk factors predicting attempts (Luoma et al., 2002; Nock et al., 2008a).

The gap in what differentiates those with suicidal ideation from those who attempt suicide has led to calls for research that follows an *ideation-action* framework (Klonsky & May, 2014). Ideation-action theories include O'Connor's (2011) Integrated Motivational-Volitional model of suicidal behaviour, Joiner's (2005) interpersonal theory of suicide and Klonsky and May's (2015) three-step theory. They posit that one cluster of factors result in the development of suicidal ideation and a separate cluster of factors enable or drive individuals to act on these thoughts. A body of research has emerged supporting this conceptual stance. In addition to May and Klonsky's (2016) meta-analysis, epidemiological studies have replicated the finding that while hopelessness and psychiatric disorders including depression are consistently associated with suicidal ideation, they negligibly differentiate ideators from attempters (Kessler et al., 1999; Nock et al., 2008b). Similar results have been found in social connectedness, anhedonia, entrapment, bullying, and emotion dysregulation (Arango et al., 2016; Dhingra et al., 2016; Khazem & Anestis, 2016; Winer et al., 2016).

One of the most promising risk factors for distinguishing ideators from attempters is suicidal capability, a key tenet of all ideation-action theories (Klonsky et al., 2017). Suicidal capability refers to a habituation to pain, injury, and fear. It is hypothesised to be acquired over time through experiences such as trauma or NSSI (Klonsky & May, 2015) and enable suicidal behaviour (Joiner, 2005). Electroencephalogram methodology has shown a blunted neural response to threatening imagery in attempters compared to ideators (Weinberg et al., 2017) and acquired capability has been shown to differentiate ideators and attempters in a military, adult community samples national youth samples (Chu et al., 2016; Cheek et al., 2016; Wetherall et al., 2018). Furthermore, relationship between NSSI and suicide attempt has been found to be strongest in those demonstrating higher persistence through painful and distressing tasks (Law et al., 2017). As such, reviews highlight suicidal capability as a key area for future research within an ideation-action framework (Ma et al., 2016; Stewart et al., 2017a).

Although the recent growth in research following an ideation-action framework, and subsequently identified attempt-specific risk factors is promising, the vast majority is cross-sectional with Klonsky et al.'s (2017) review highlighting only one longitudinal study. Contemporary suicide theory suggests suicidal behaviour is best conceptualised as a specific response to environmental stressors that interact with biological and intrapsychic mechanisms and vulnerabilities (Rudd, 2006). The suicidal process from decision to action has been shown to last less than 10 minutes for the majority of cases, and suicidal ideation waxes and wanes over time (Deisenhammer et al., 2009; Harmer et al., 2020). As such, cross-sectional studies are unlikely to identify proximal risk factors which may be most salient for assessing clinicians, and factors that are not associated with lifetime suicide attempts, may be associated acutely. Unidentified acute risk factors may therefore be prematurely de-prioritised from risk assessment frameworks, and this uncertainly may be a factor in the continuing traditional, but empirically discredited, view that more severe ideation is the key predictor of suicide attempts.

Despite commonly being the basis for risk assessments (Blanchard & Farber, 2020; Richards & Whyte, 2011), little research exists suggesting that active suicidal ideation (with intent or a suicidal plan) compared to passive ideation (death wish without intent) differentially places one at greater risk of suicide. While both active and passive ideation are associated with suicide attempts and deaths compared to non-suicidal controls cross-

sectionally, a recent meta-analysis found only two studies directly compared their predictive validity with no significant difference found in either study or the pooled effect size (Liu et al., 2020). However, in the absence of longitudinal studies and given the acute nature of suicidal behaviour, it could be argued that one would expect any association to be observable acutely and not in cross-sectional studies.

A further limitation of cross-sectional designs is they do not allow examination of the most robust predictor of suicidal behaviour in past suicide attempts (Bostwick et al., 2016). Additionally, few studies have explored NSSI longitudinally within an ideation-action framework despite cross-sectional evidence highlighting its' ability to distinguish ideators from attempters (Burke et al., 2018; Stewart et al., 2017b). Given that both historical suicide attempts and NSSI are hypothesised to be key determinants of acquired suicidal capability, their longitudinal exploration is a key research gap. This study intends to address this gap within a real-world clinical setting, in addition to evaluating the ability of passive versus active ideation to differentially predict suicide attempt.

Ecologically valid research is vital as, contrary to research settings where participants actively sign up to discuss suicidality, Blanchard and Farber (2016) found nearly a third of adults in psychotherapy conceal suicidal ideation from their therapist. Common qualitative reasons for concealment include fear of hospitalisation, shame and unwanted restriction of suicidal acts while the most common reasons for disclosure were access to emotional support and treatment (Blanchard & Farber, 2020; Hom et al., 2017). The study of real-world disclosures relied upon by clinicians to inform risk judgements may therefore elucidate novel risk factors, discounted in research settings, or reveal a lack of real-world predictive validity of established risk factors.

Improving Access to Psychological Therapies (IAPT) is the predominant primary care mental health care model in the UK, assessing over 1.6 million individuals annually (NHS, 2019a). IAPT services deliver interventions for mild to moderate depression and anxiety disorders (NHS, 2019b) and all service users referred to IAPT attend an assessment with an IAPT-specific clinician with the purpose of ascertaining the main difficulties, formulating a treatment plan (or onwards referral) and assessing risk. The IAPT risk assessment comprises of a structured interview which asks every service user for details of suicidal ideation, intent and plans, and current and historical suicidal ideation and attempts in line with national guidance (Richards & Whyte, 2011). Any positive response or a statement of denial is noted

on a standardised form. Details of current and historical NSSI are logged in the same manner. A raft of other demographic and clinical information is recorded as standard practice as part of the minimum dataset with complete data obtained in 98% of contacts nationally (NHS, 2019b). Additionally, all incidences of self-harm (with or without lethal intent) are required to be documented through trust-wide incident reporting database in line with trust policy. This includes all incidences occurring within, or reported to, any healthcare service within the trust in which this research took place. This provides a process to track suicidal behaviours longitudinally, post IAPT assessment, regardless of outcome.

This study aimed to use record linkage to explore the ability of information, collected as part of the IAPT risk assessment protocol, to distinguish those reporting suicidal ideation at their IAPT assessment from those making a suicide attempt in the following 24 months. Examined variables included active and passive suicidal ideation, NSSI and historical suicide attempt.

## **Method**

### **Participants**

Participants were drawn from two East of England IAPT services. Clinical records of attended IAPT assessments from 01/01/2015 – 01/03/2020 were requested with 79314 records identified. IAPT assessment records were linked to any incident report categorised as “self-harm” logged between 2015 and 2021. 1430 incident reports were identified pertaining to 235 individuals attending an IAPT assessment within our inclusion period. Incidents were categorised as suicide attempts in line with The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013; DSM-V; APA) criteria based on a review of medical records and incident descriptions by two senior clinicians. Intent to die must have been stated or implied by the participant (for example in a suicide note, or medical record) or the behaviour classified as a suicide attempt in their record. Aborted or interrupted attempts were not included. Behaviours with life threatening consequences, defined as scoring four or more on the Beck Lethality Scale (Beck et al., 1975; BLS) were classified as suicide attempts unless suicidal intent was explicitly denied. Analysis of agreement between clinicians showed excellent inter-rater reliability (Cohen’s Kappa > .80) for both suicide attempt classification and BLS score.

Eighty-five individuals making a suicide attempt within 24 months of their IAPT assessment were identified for inclusion. Suicide attempts scored an average of 3.18 ( $\sigma = 2.17$ ) on the BLS with 38 scoring  $\geq 4$  indicating high lethality attempts by convention. The mean time between IAPT assessment and index attempt was 309.58 days ( $\sigma = 215.26$ ) and ranged from two to 726 days with a histogram suggesting a normal distribution. The most common method was overdose (67.06%), followed by hanging (12.94%), cutting (10.59%), jumping (4.71%), drowning (2.35%), and vehicular collision (2.35%). A further 2159 IAPT assessment records were randomly selected using the random number generation method within excel (Barreto, 2015), in line with the a-priori power estimates outlined below and stratified to form two further comparison groups. One group reporting no suicidal ideation at the time of IAPT assessment (non-suicidal controls,  $n = 1416$ ) and the other reporting suicidal ideation at assessment, categorised as passive, active or a suicidal plan in line with the coding scheme outlined below (ideators,  $n = 743$ ).

No published data exists on the prevalence of suicidal behaviours within IAPT or at IAPT assessment specifically. Two senior therapists estimated 50 - 100 incident reports pertaining to non-fatal suicide attempts following IAPT assessments would be returned for each year studied giving an a-priori lower bound estimate of 100 suicide attempters. Harrell et al. (1984) recommends a minimum of 10 participants per group per variable included in a binary logistic regression and as such, the a-priori lower bound sample size estimate of 100 was designed to allow all variables of interest to be included in the binary logistic regression with a power of  $b = .80$  (adequate by convention) and a small effect size Odds Ratio = 1.68 (Chen et al., 2010). Based on Nock et al., (2008) estimates of a prevalence of 9.1% for suicidal ideation we estimated a random sample of 2500 participants would be required to capture a suicidal ideation comparison group sample size to match the upper bound estimate of 200 suicide attempters. This estimate included a small buffer for missing data rates and coding scheme development, giving a final included comparison sample of 2159.

### **Ethical Approval**

This study was approved by the University of East Anglia Faculty of Medicine and Health (reference: 2020/21-133) and NHS Health and Health Research Authority (reference: 21/HRA/3611).

### **Procedure and Measures**

Clinical records from participant's IAPT assessments were coded by six clinicians with the following variables extracted. The coding scheme was piloted and iteratively revised until 90% percentage agreement was achieved. Coders received training from the first author, and all had prior research methods training. Interrater reliability was calculated using Light's (1971) adapted methodology for Cohen's (1988) Kappa for multiple raters on a randomly selected sample of 100 records with excellent interrater reliability  $>.80$  for all variables in line with Koo and Li's (2016) recommendation. Records without evidence of enquiry regarding all variables below were excluded ( $n = 68$ ). Complete, data was therefore obtained for 97.06% of participants. Excluded and included participants did not significantly differ across any variable ( $p > .050$ ).

### ***Suicidal Ideation***

The suicidal ideation subscale of the Columbia-Suicide Severity Rating Scale (C-SSRS) has good validity and consistency, is sensitive to change over time and is suggested as a gold standard assessment measure (Posner et al., 2011). The C-SSRS suicidal ideation subscale was employed with suicidal ideation defined as denied, passive (without intent, including imagery), active (with intent) or plan (details fully or partially worked out) occurring within two weeks of assessment. Any type of ideation (passive, active or plan) occurring more than two weeks prior to assessment was defined as historical suicidal ideation.

### ***NSSI***

NSSI was coded using the definition of "the intentional destruction of body tissue without suicidal intent and for purposes not socially sanctioned" (Klonsky, 2007). Participants must have denied suicidal intent for the behaviour or self-classified this behaviour as "self-harm" rather than a suicide attempt in line with the IAPT risk interview schedule (Richards & Whyte, 2011). NSSI was defined as current if enacted within the two weeks preceding the assessment date or historical if occurring earlier than this.

### ***Historical Suicide Attempt***

Suicide attempt was defined as self-inflicted harm with non-zero intent to end one's own life in line with DSM-V (APA, 2013) criteria. Intent to die must have been stated, or the behaviour classified as a suicide attempt by the participant. Aborted or interrupted attempts were not included.



### ***Clinical Measures***

As standard clinical practice the Patient Health Questionnaire (PHQ-9), Generalised Anxiety Disorder Screener (GAD-7), Work and Social Adjustment Scale (WASAS) and IAPT Phobia Scale are completed by every individual at their IAPT assessment. The PHQ-9 and GAD-7 are screening measures for depression and generalised anxiety disorder with both evidenced to have excellent reliability and validity (Kroenke et al., 2001; Spitzer et al., 2006). The WASAS is evidenced to measure self-perceived difficulties in daily functioning with excellent psychometric properties (Zahra et al., 2014). The IAPT Phobia Scale (NHS, 2011) contains three single-item screening questions rating the degree of avoidance from feared situations and has not been psychometrically validated to the authors knowledge.

### **Statistical Analysis**

All analysis was conducted using the Statistical Package for the Social Sciences 26.0 (SPSS, Chicago, Illinois, USA). Three groups (controls, ideators and suicide attempters) were compared on demographic and clinical variables. Categorical variables were analysed with Chi-square tests with a Phi ( $\Phi$ ) coefficient of 0.10, .30 and .50 representing small, medium and large effect sizes (Rosenthal, 1996). Levene's test showed violation of homogeneity of variance assumptions for GAD-7, PHQ-9 and IAPT Phobia Scale scores ( $p < .001$ ). Histograms suggested non-normal distributions, with consistent positive skewness in all groups for GAD-7 and PHQ-9 scores, and consistent negative skewness for age and IAPT Phobia Scale scores. As such, non-parametric Kruskal-Wallis H tests were used to assess group median differences with Mann-Whitney U post-hoc pairwise comparisons for age and PHQ-9, GAD-7, and IAPT Phobia Scale scores. Effect sizes were calculated using Rosenthal and Rubin's (2003) methodology with  $r = .10$ ,  $r = .30$  and  $r = .50$  being considered as small, medium and large effect sizes by convention (Brydges, 2019). One-Way ANOVA was used to analyse group differences in WASAS score with Tukey's (1977) Honest Significant Difference test used to investigate intergroup differences and effect size calculated using Cohen's  $d$ . Holm-Bonferroni (Holm, 1979) corrections for multiple comparisons were applied to all reported  $p$ -values. Medians and inter-quartile ranges are presented as an alternative to means and standard deviations for non-normally distributed data.

Variables included in the IAPT risk assessment were entered into a binary logistic regression to predict group membership between ideators and attempters. Finally, we analysed any participant in the suicide attempter group who subsequently attended an IAPT

assessment to elucidate the proportion who disclosed their suicide attempt to the assessing clinician.

## Results

In participants that reported ethnicity, no group differences were found in the proportion of participants reporting their ethnicity as white ( $X^2(2, N = 1961) = .96, p = .620$ ) with 283 participants declining to disclose their ethnicity. Participants with suicidal ideation were negligibly younger ( $U = 485607.50, p = .037, r = .06$ ), less likely to be employed or in education or training ( $X^2(1, N = 2135) = 17.00, p < .001, \Phi = .089$ ) and more likely to be male ( $X^2(1, N = 2159) = 6.754, p = .028, \Phi = .056$ ) than non-suicidal controls. Compared to ideators, participants making suicide attempts were less likely to engage in IAPT treatment ( $X^2(1, N = 828) = 23.51, p < .001, \Phi = .17$ ) and less likely to be in employment, education, or training ( $X^2(1, N = 817) = 8.88, p = .003, \Phi = .10$ ). Suicide attempters were also negligibly younger ( $U = 51033.50, p = .037, r = .06$ ), less likely to engage in IAPT treatment ( $X^2(1, N = 1501) = 29.24, p < .001, \Phi = .14$ ) and less likely to be in employment, education, or training ( $X^2(1, N = 1478) = 23.46, p < .001, \Phi = .13$ ) than non-suicidal controls. No other group differences were significant.

**Table 1**

*Descriptive characteristics*

	Non-Suicidal Control <i>n</i> = 1416	Suicidal Ideation <i>n</i> = 743	Suicide Attempt <i>n</i> = 85	<i>P</i> value
Age†	37.00 (25.00) <sup>a</sup>	35.00 (25.00) <sup>b</sup>	35.00 (29.00) <sup>b</sup>	.002
% Engaging in IAPT Treatment	52.54% <sup>a</sup>	50.07% <sup>a</sup>	22.35% <sup>b</sup>	< .001
Employed, in Education, or Training (16+ hours)	67.60% <sup>a</sup>	58.52% <sup>b</sup>	41.25% <sup>c</sup>	< .001
% White	92.60% <sup>a</sup>	92.45% <sup>a</sup>	95.65% <sup>a</sup>	.620
% Male	31.07% <sup>a</sup>	36.61% <sup>b</sup>	38.82% <sup>ab</sup>	.019

*Note* †Median (Interquartile range) is presented as data is not normally distributed. Each superscript letter denotes an intergroup difference for a particular variable.

Non-suicidal controls and ideators statistically differed on all clinical variables presented in table 2. Compared to non-suicidal controls, a greater proportion of ideators reported historical suicidal ideation ( $X^2(1, N = 2159) = 25.78, p < .001, \Phi = .11$ ), historical suicide attempts  $X^2(1, N = 2159) = 90.64, p < .001, \Phi = .21$ ), current NSSI  $X^2(1, N = 2159) = 80.45, p < .001, \Phi = .19$ ) and historical NSSI  $X^2(1, N = 2159) = 87.83, p < .001, \Phi = .20$ ). They were also more likely to return higher scores on measures of anxiety ( $U = 381928.00, p < .001, r = .23$ ), depression ( $U = 254472.50, p < .001, r = .43$ ) and the IAPT phobia scale ( $U = 422289.50, p < .001, r = .10$ ) and report negligibly greater impairment in daily functioning ( $t(2022) = 13.37, p < .001, d = .063$ ).

Similarly, suicide attempters differed to controls on all clinical variables except the proportion reporting suicidal ideation without a historical suicide attempt. A greater proportion of suicide attempters reported historical suicide attempts  $X^2(1, N = 1501) = 88.86, p < .001, \Phi = .24$ ), current NSSI  $X^2(1, N = 1501) = 52.44, p < .001, \Phi = .19$ ) and historical NSSI  $X^2(1, N = 1501) = 53.15, p < .001, \Phi = .19$ ) compared to non-suicidal controls. They were also more likely to return higher scores on measures of anxiety ( $U = 40863.50, p < .001, r = .13$ ), depression ( $U = 30286.00, p < .001, r = .20$ ) and specific phobias ( $U = 13002.50, p < .001, r = .29$ ) and reported negligibly greater impairment in daily functioning ( $t(1416) = 3.22, p < .003, d = .04$ ).

When comparing suicide attempters to ideators, attempters were more likely to report a previous suicide attempt ( $X^2(1, N = 828) = 13.03, p < .001, \Phi = .13$ ) and previous NSSI ( $X^2(1, N = 828) = 5.77, p = .016, \Phi = .08$ ). A greater, but non-significant proportion of suicide attempters also reported current NSSI ( $X^2(1, N = 828) = 3.64, p = .057, \Phi = .07$ ). In terms of clinical measures, suicide attempters scored higher on the IAPT phobia scale ( $U = 8016.50, p < .001, r = .36$ ) with no other significant differences between groups.

**Table 2**

*Clinical variables*

	Non-Suicidal Control <i>n</i> = 1416	Suicidal Ideation <i>n</i> = 743	Suicide Attempt <i>n</i> = 85	<i>P</i> value
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Historical Suicidal Ideation (Without Attempt)	21.32% <sup>a</sup>	31.12% <sup>b</sup>	24.71% <sup>ab</sup>	< .001
Historical Suicide Attempt	9.75% <sup>a</sup>	25.17% <sup>b</sup>	43.53% <sup>c</sup>	< .001
NSSI	6.07% <sup>a</sup>	18.44% <sup>b</sup>	27.06% <sup>b</sup>	< .001
Historical NSSI	14.62% <sup>a</sup>	31.76% <sup>b</sup>	44.71% <sup>c</sup>	< .001
PHQ-9†	13.00 (8.00) <sup>a</sup>	20.00 (8.00) <sup>b</sup>	20.00 (8.00) <sup>b</sup>	< .001
GAD-7†	13.00 (8.00) <sup>a</sup>	16.00 (7.00) <sup>b</sup>	17.00 (7.00) <sup>b</sup>	< .001
WASAS	16.95 (9.28) <sup>a</sup>	22.75 (9.02) <sup>b</sup>	20.65 (9.82) <sup>b</sup>	< .001
IAPT Phobia Scale†	1.00 (4.00) <sup>a</sup>	2.00 (5.00) <sup>b</sup>	11.00 (11.00) <sup>c</sup>	< .001
Active Suicidal Ideation	-	16.55% <sup>a</sup>	15.29% <sup>a</sup>	.766
Suicide Plan	-	3.50% <sup>a</sup>	7.06% <sup>a</sup>	.056

*Note †Median (Interquartile range) is presented as data is not normally distributed. Each superscript letter denotes an intergroup difference for a particular variable.*

The proportion of those reporting active suicidal ideation did not differ between ideators and attempters ( $X^2(1, N = 828) = .088, p = .766, \Phi = .010$ ). Non-suicidal controls are not included as they were grouped according to an absence of any suicidal ideation, and rates of passive suicidal ideation are not reported as by definition all ideators were required to have a minimum of passive ideation. Double the proportion of participants in the attempter group reported a suicidal plan, with this difference approaching statistical significance,  $X^2(1, N = 828) = 2.60, p = .056, \Phi = .11$ .

A binary logistic regression was conducted examining the ability of clinical variables collected as part of the IAPT risk assessment to predict membership of the ideator or attempter groups. One variable was required to be dropped to maintain acceptable power and risk of overfitting in line with Harrell et al.'s (1984) recommendation. As such, PHQ-9 score was omitted to as no difference was found in median scores between groups. Multicollinearity was tested using spearman correlation coefficients with no correlations exceeding a threshold of  $r = .80$  suggested by Kim (2019).

The overall model was significant,  $X^2(8) = 28.81, p = .004$ . It predicted 55.49% of the total variance in suicide attempt within two years of assessment using the Nagelkerke  $R^2$  method. The model correctly classified 99.41% of those not making a suicide attempt and

53.62% of those that did. Of the variables drawn from the IAPT risk assessment, only historical suicide attempt significantly contributed to the model (Wald  $X^2(1) = 5.78, p = .016$ ) with those making historical suicide attempts being 2.85 times more likely to make an attempt within two years of assessment. IAPT Phobia Scale scores additionally predicted increased likelihood of suicide attempt (Wald  $X^2(1) = 80.16, p < .001$ ) with a one-point increase predicting an increase in the likelihood of suicide attempt by a factor 1.66. The unique variance contributed by the IAPT Phobia Scale score accounted for 48.84% of the 53.62% total variance in suicide attempt probability explained by the overall model. Conversely, a one-point increase in GAD-7 (Wald  $X^2(1) = 5.21, p = .022$ ) and WASAS (Wald  $X^2(1) = 15.66, p < .001$ ) scores predicted a small decrease in the likelihood of suicide attempt, both by factor of 1.09. Suicidal plan, active suicidal ideation, historical suicidal ideation (without attempt), NSSI and historical NSSI did not significantly contribute to the model.

As the IAPT Phobia Scale predicted a large proportion of unique variance it was entered into a second binary model as a sole predictor. This model was significant  $X^2(6) = 33.30, p < .001$ . It predicted 46.36% of the total variance in suicide attempt, correctly classifying 49.30% suicide attempters and 100% of ideators with a one-point increase enhancing the odds of a suicide attempt by 1.53.

### **Disclosure Consistency**

Thirty-one suicide attempters attended a second IAPT assessment after their attempt date. At these assessments, 20 (64.52%) disclosed having previously made a suicide attempt, a further six (19.35%) disclosed historical suicidal ideation (but denied making an attempt) and five (16.13%) denied a history of both suicide attempt and suicidal ideation.

### **Discussion**

This study aimed to identify factors available to clinicians at IAPT assessment, that distinguished those with suicidal ideation only, from those who made a suicide attempt within the following two years. Active suicidal intent (over and above passive death wish) was no more common in attempters than ideators. This suggests the disclosure of active ideation confers no additional risk of future suicide attempt comparative to passive ideation. These results are consistent with Liu et al.'s (2020) meta-analysis that found no difference in the

predictive validity of passive versus active ideation on suicide lifetime suicide attempt. Taken together, this evidence suggests the distinction of active and passive ideation does not distinguish ideators from attempters and may be of limited value in assessing risk of those disclosing suicidal thoughts. Conversely passive ideation should be given equal weighting to active ideation when assessing suicide risk in line with the National Action Alliance for Suicide Prevention's (2014) recommendation.

Attempters were less likely than ideators and non-suicidal controls to engage in IAPT treatment post-assessment, consistent with the findings that the majority of those who die by suicide have minimal contact with psychiatric services in the year prior to their death (Shahtahmasebi, 2003). Our data does not show if attempters were more likely to be referred to alternative services or less likely to be offered treatment than ideators or non-suicidal service users. As such the IAPT triage assessment may be considered to either effectively screen risk and enable referral to appropriate services, or exclude those vulnerable to suicide from treatment, potentially contributing to future suicidality. Future research should seek to examine this question.

The proportion of those disclosing suicidal plans in the attempter group was double that of the ideator group. Although marginally failing to reach statistical significance a difference of this magnitude suggests an inquiry into suicidal plans may be valuable in assessing risk. However, the vast majority of attempters did not disclose plans at assessment. As such, these findings suggest most of those attempting suicide will not disclose suicidal plans, and most of those that do will not attempt. This study cannot comment on whether the low rates of disclosure are driven by an unwillingness to report current suicidal plans, or if plans were made after the date of assessment. Given, the suicidal process from decision to action is often a matter of minutes (Deisenhammer et al., 2009), and a third of service users concealed historical suicidality in this study both explanations seem plausible. It is also possible that suicidal individuals may more readily disclose historical suicidality as it carries less perceived threat of enforced hospitalisation, the most common reason for not disclosing suicidal thoughts (Blanchard & Farber, 2016). Although international guidance on enforced hospitalisation for the purpose of suicide prevention is strikingly absent (Wang & Colucci, 2017), the WHO's (2014) report, *Preventing Suicide: A Global Imperative*, highlighted stigma reduction as a key indirect preventative measure. As such, future research examining

what can be done by clinicians to enable disclosure should be a priority and proactively clarifying hospitalisation thresholds with patients may be beneficial.

Consistent with our hypothesis that markers of acquired capability would be more prominent in the attempter group, both historical suicide attempt and historical NSSI distinguished ideators and attempters with modest effect sizes, and a disclosure of current NSSI approached significance. This is congruent with ideation-action theories that posit the habituation to the physiological pain and emotional fear response associated with the suicidal act is necessary (or at least implicated) in its' initiation. Both a history of NSSI and suicide attempts would be expected to result in increased tolerance of intrinsic existential fear and enable one to proceed with potentially fatal acts. To the authors knowledge this study is the first to directly show that historical NSSI and suicide attempts are capable of distinguishing ideators and attempters with our regression model suggesting the presence of a historical suicide attempt doubled the odds of a suicide attempt within two years of assessment. Despite the differential motivations and contexts, and inconsistent rates of disclosure, a disclosure of historical suicide attempt at IAPT assessment appears a robust risk factor for future attempt.

A history of suicidal ideation without previous attempt did not differentiate attempters and ideators, was only marginally more common than non-suicidal controls and was more common in the ideator than the attempter group. This suggests that, while a history of suicidal ideation is likely to increase risk of future suicidal ideation, in those with current suicidal ideation, those disclosing previous ideation without suicidal acts may be relatively less likely to act in the future. As such, thinking about suicide alone, may not be enough to develop acquired suicidal capability. More research is needed to examine the logically opposite framing of this finding; that those experiencing ideation for the first time may be at greater risk of acting.

Congruent with May and Klonsky's (2016) meta-analysis, and ideation-action theories, measures of anxiety and depression severity, and daily functioning, differentiated non-suicidal controls from ideators but not ideators from attempters. Interestingly the IAPT Phobia Scale did differentiate ideators and attempters with median scores being over five times higher in the attempter group. This scale was also capable of correctly classifying nearly half of suicide attempters with perfect specificity, as a sole predictor in our regression model with a two-point increase tripling the odds of a suicide attempt. To the authors knowledge, the scale has not been psychometrically tested or explored in any study of

suicidality. Although titled a *phobia* scale, it asks the degree to which one would avoid situations that risk social embarrassment, panic attacks or distressing physical symptoms and those involving specific phobias. As such, one might consider it a measure of avoidance in that one who scores highly across these domains is also one who employs avoidance as a primary coping strategy for psychological distress. The suicidal act might conceivably be considered the ultimate avoidance in that one forgoes their future in exchange for the relief from pain and suffering.

Avoidance has been linked with suicidality with a recent meta-analysis finding experiential avoidance was associated with both NSSI and suicidal experiences with small and, medium to large effect sizes respectively (Angelakis & Gooding, 2021). Experiential avoidance refers specifically to the avoidance of distressing internal experiences such as pain, emotions, images and thoughts (Hayes et al., 1996) and, as such, could be considered a mechanism of action for acquired capability (or decreased salience of a protective fear response). Avoidance is a key maintenance factor in post-traumatic stress disorder (Ehlers & Clark, 2000) which in turn was one of the few factors found to differentiate attempters and ideators in May and Klonsky's (2016) meta-analysis. Furthermore, NSSI, an avoidant coping strategy (Angelakis & Gooding, 2021), was found to differentiate ideators and attempters in this study. NSSI has been shown to be effective in coping with acute intolerable distress through narrowing attention to present focussed pain (Anderson et al., 2018; Klonsky, 2007) and an increase in NSSI frequency and methods has been shown to differentiate ideators and attempters cross-sectionally (Ammerman et al., 2016). Engaging in NSSI may initially aid in coping with suicidal urges (and reinforced by relief from distress) but, with habituation over time to chronic NSSI, an escalation of intensity, method or frequency required would be required to maintain the effectiveness of the avoidance of distress (Liu, 2017). Future research should explore whether experiential avoidance mediates the relationship between NSSI and subsequent suicide attempt (as a continuum of avoidant coping strategies) and whether this is in turn moderated by an increase in experiential avoidance over time (within an individual). Furthermore, one might expect to find a relationship with non-disclosure, which could be considered both an avoidant strategy in its' own right, and a tool for maintaining access to a continuum of additional avoidant coping strategies including suicide.

### **Strengths and Limitations**



This study's main limitation is that only suicide attempters encountering services are captured. These attempts are likely to be higher in severity, reflected in the mean observed BLS score, and an unknown number of low-lethality attempters not receiving medical attention will have been excluded. Furthermore, our inclusion criteria required suicidal intent and given the inconsistent reporting of past suicidality, some attempters concealing intent will also have been excluded. The employed methodology utilised pre-existing clinical notes that followed a standard assessment framework. As such, the coding scheme, and by extension the variables studied were conceptually limited by this framework. Those participants with ambivalent suicidal intent or interrupted or aborted attempts were therefore unable to be distinguished within this research. These groups are underrepresented within the wider field and future research should seek to understand if and how they differ from suicide attempters more broadly. However, the sample was relatively large and closely mirrored the national demographics of IAPT assessments that NHS Digital (2021) report to be 32.51% male, 70.30% in employment, training or education and 56.12% under the age of 35. Additionally, ecological validity was high with no selection bias. While validated measures were not used for all variables, all variables studied are available to assessing IAPT clinicians in the same form they are presented in this study, suggesting direct clinical utility. Data is longitudinal and limited to suicide attempts occurring within two years of assessments, offering clinicians insight into suicide risk within a limited timeframe. The demographics of those attending IAPT assessments do not mirror suicide attempts nationally by age or gender, so care should be taken in generalising these results outside of IAPT. However, within IAPT settings results are likely to be robust and generalisable.

### **Clinical Implications and Directions for Future Research**

The IAPT Phobia Scale may be a useful tool in predicting suicide risk, potentially representing a measure of avoidance requiring face validation and detailed explorations of the constructs measured. Research replicating the predictive validity of this tool is required. A sizeable minority of service users are likely to withhold past suicidality at assessment but a disclosure of past suicide attempt or NSSI are risk factors that distinguish ideators and attempters. Future research should explore concealing suicidal behaviours and cognitions as a risk factor for suicide. Active suicidal ideation confers no extra risk of attempt above passive ideation, but a disclosure of a suicidal plan is more common (although still rare) in attempters compared to ideators. Those making suicide attempts are less likely to engage in IAPT

treatment, but research is needed to indicate if they are offered treatment elsewhere or if a lack of access to services contributes to suicidality.

### **Conclusions**

Historical NSSI and historical suicide attempts differentiated ideators and those making attempts within two years of assessment but active compared to passive ideation did not. The IAPT phobia scale independently predicted suicide attempt within two years of assessment with excellent specificity and relatively high sensitivity.

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## **Chapter Five**

### **Overall Discussion, Critique, and Conclusions**

**Word Count: 6132**

## **Overall Discussion of Findings**

Two papers are presented within this thesis, the first a systematic review examining factors that distinguish high and low lethality attempters within an older adult population and an original empirical article examining the ability of routinely assessed clinical variables to distinguish those presenting with suicidal ideation at IAPT assessment from those who attempt within the following two years. A distinction between the two presented papers was their ecological validity. Papers in the systematic review were limited to studies where participants actively chose to discuss past suicidality while those in the empirical paper were drawn from a real-world clinical setting. Research suggests service users frequently conceal suicidal ideation from their therapist (Blanchard & Farber, 2016) and this was supported by the present empirical paper that suggests IAPT is no exception, with a third of suicide attempters concealing their attempt at a subsequent IAPT assessment. This highlights the value of ecologically valid research and the somewhat flawed nature of risk assessment that relies on risk factors evidenced in disclosures. One might hypothesise that those most determined to end their life, or most avoidant, ashamed, or stigmatised (hypothesised risk markers in their own right) would be least likely to disclosure suicidal ideation, plans or history. Future research is urgently needed to address this question and clinical practice (and wider society) must adapt to destigmatise the disclosure of suicidality, and actively work to attenuate the fear and shame associated with implicitly threatened hospitalisation. Despite these limitations, the empirical paper demonstrated novel longitudinal findings that a disclosure of historical NSSI and suicide attempts were associated with future attempt, further supporting ideation-action theory.

A key conclusion of the systematic review was a two-part theory positing that, comparative to low lethality attempters, a) high-lethality suicide attempters are less prone to acting on suicidal urges driven by emotional distress and thus their attempts are likely to be better planned and more lethal and b) cognitive inflexibility in high-lethality attempters may leave them less likely to find alternative solutions to their distress once a suicidal plan has been conceptualised, and less likely to alter their suicidal plan once it has been made. A tentative suggestion of the empirical paper was that avoidance appeared to differentiate ideators and attempters, with the IAPT Phobia Scale accounting for nearly half the variance in group membership between ideators and attempters and correctly classifying nearly half of

suicide attempts with perfect specificity. This model is considerably more accurate than any included in Belsher et al.'s (2019) review of prediction models.

A limitation of the empirical paper was that it was underpowered to distinguish between high and low-lethality attempters. However, the mean Beck Lethality Scale (Beck et al., 1975) score was 3.18 with 38 of 85 attempters scoring above a classification cut-off of 4 for a high lethality attempt. This indicates attempt lethality was medium to high and the suicide attempter group was likely to be at least somewhat representative of high-lethality attempters. If the theory proposed in the systematic review is generalisable outside of older adults, one might consider that high lethality attempters should display high experiential avoidance as was suggested in the empirical study, although through an unvalidated measure.

The proposed theory suggests high-lethality attempters are less likely to impulsively act on strong emotional urges than their low-lethality counterparts. Trait experiential avoidance could be considered a viable underlying mechanism of the reduced emotional reactivity in high lethality attempters in that those high in experiential avoidance would be expected to perceive dampened affect including fear, sadness and joy, as has been evidenced in differences between physiological and markers of emotion and self-perceived emotional intensity (Leonidou, & Panayiotou, 2021). Experiential avoidance is defined as an unwillingness to experience internal stimulation in the form of cognitions, images, emotions or sensations (Hayes et al., 1996). It is necessary to make a distinction in terminology here that an individual may employ experientially avoidant coping strategies such as NSSI to obtain relief from unpleasant internal experiences or have high trait levels of experiential avoidance in which they may perceive dampened emotional perception (or both).

To the authors knowledge, no study has explored differences in experiential avoidance between high and low-lethality attempters, but experiential avoidance has been shown to consistently differentiate ideators and attempters, being higher in the latter group with a large effect size in Angelakis and Gooding's (2021) meta-analysis. Interoceptive deficits (the ability to sense internal physiological sensations) have also been shown to be more pronounced in attempters compared to ideators (Forrest et al., 2015). A review of the association between anhedonia and suicide concluded findings were highly mixed with some studies finding positive associations and some negative (Bonanni et al., 2019). Included studies did not explore the possible mediating influence of attempt lethality which may resolve these inconsistencies. Robbins and Alessi (1985) found anhedonia was positively

associated with medical lethality of suicide attempt in a sample of adolescent psychiatric inpatients but to the best of the author's knowledge and a comprehensive work by Ritsner, (2014), this remains the only study to date that has explored the ability of anhedonia to distinguish high and low lethality attempters. Similarly, alexithymia has been shown to be correlated with the medical lethality of suicide attempt, but few studies exist (Sayar et al., 2003).

The inability to feel positive emotions is a consequence of persistent emotionally avoidant coping strategies, as one becomes blunted to emotion as a whole, rather than specific emotional experiences (Hayes et al., 1996; Leonidou, & Panayiotou, 2021). As such, if high lethality attempters are the most experientially avoidant, in addition to elevated rates of anhedonia and alexithymia, one would expect to see less emotional impulsivity. Impulsivity has been shown to be higher in low compared to high-lethality attempters in adolescent and adult samples (Baca-García et al., 2001; Levi-Belz et al., 2020). Poor emotion regulation is evidenced to predict suicide attempt (Domínguez-García & Fernández-Berrocal, 2018) but is untested in its' ability to differentiate high and low-lethality attempters. As most suicide attempts included in research are low lethality, the overall association between poorer emotional regulation and suicide attempt is unsurprising, as high lethality attempts would be expected to have less pronounced deficits than low lethality attempters but not necessarily non-suicidal controls or ideators.

It would be expected that those who are most avoidant would struggle to form close interpersonal relationships through lack of opportunity and unwillingness to risk abandonment and rejection. Congruently, social deficits have been shown to be higher in high lethality attempters (Gvion & Levi-Belz, 2018) and Wiktorsson et al. (2016) found social problems were more commonly given as a reason for attempt in the high-lethality group. Interestingly, Vanyukov et al. (2017) found perceived burdensomeness was higher in low-lethality attempters. One might consider that to perceive oneself as a burden, one must altruistically value and empathise with a valued relationship. The same valued relationship may protect against the severity of that attempt while conversely high-lethality attempts may be driven by internal logic. Although only approaching significance in our systematic review, effect size confidence intervals suggested alcohol use disorder is likely to differentiate high and low lethality attempters which in turn is often recognised an emotionally avoidant coping strategy used to numb emotional distress and is associated with increased suicide risk

(Cavicchioli et al., 2020). Similarly, May and Klonsky's (2016) meta-analysis identified substance use disorder as one of the few factors capable of distinguishing between ideators and attempters, and effect size confidence intervals in the present meta-analysis suggested it is likely to distinguish high and low lethality attempters in older adults. This provides further evidence that high lethality attempters are more likely to be those engaging in experientially avoidant coping strategies.

In the empirical paper, a previous suicide attempt was a more robust differentiator of ideators and attempters than NSSI, and similarly, increased levels of experiential avoidance are more strongly associated with suicidal behaviours than with NSSI (Angelakis & Gooding, 2021). Both NSSI and suicide attempt are considered experientially avoidant behavioural strategies, and experiential avoidance is cited as the key function of NSSI by Chapman et al. (2006). Furthermore, NSSI has been shown to increase suicidal capability longitudinally with a unidirectional relationship (Willoughby et al., 2015), although the mechanisms are not well understood. This suggests NSSI and suicide attempt exist along a continuum of experientially avoidant behaviours.

One might expect that those favouring experientially avoidant coping strategies would be more likely to engage in both NSSI and suicide attempt, as both behaviours are attempts to cope with overlapping diathesis of otherwise unmanageable internal distress (Angelakis & Gooding, 2021). NSSI has been shown to relieve overwhelming distress, enhance mood and allow escape from intrusive thoughts (Anderson et al., 2018; Brown et al., 2002; Franklin et al., 2010; Klonsky, 2009). Engaging in NSSI therefore effectively helps manage distressing internal experiences (including suicidal urges) in the short term and is negatively reinforced by that relief. However, although NSSI offers acute relief from distress (i.e., experiential avoidance), with chronic use, it becomes less effective over time (Stacy et al., 2018). Those engaging in chronic NSSI may therefore escalate in frequency or methods, and an escalation in either frequency or methods has been shown to predict suicide attempt (Ammerman et al., 2016; Andrewes et al., 2019).

Entrapment is a key and well evidenced motivational feature of ideation-action theories that posit it engenders suicidal ideation (O'Connor, 2011). It is plausible that for a subset of those engaging in chronic NSSI, who remain trapped by internal distress or seemingly hopeless distressing circumstances, the logical extension of an avoidant coping mechanism that requires escalation is suicide; the ultimate form of experiential avoidance,

enacted as a last resort when nothing else, not even NSSI, seems to work. Alternatively (or additionally), increasing trait levels of experiential avoidance over time, engendered by reliance on experientially avoidant coping strategies such as NSSI, may reduce the ability to experience positive emotions. These individuals would be expected to be more socially disconnected and less likely to be dissuaded from suicidal plans, consistent with the findings of the present systematic review that this pattern appears to distinguish high and low-lethality attempters.

The evidence outlined above, suggests experiential avoidance may be a mechanism by which NSSI builds suicidal capability over time. Congruently, current, and historical, NSSI was more common in ideators compared to attempters in the present empirical study and suicide attempters are more likely to persist through painful and frustrating tasks than their counterparts who do not act on suicidal ideation (Law et al., 2017). However, to better understand this phenomenon, the course of NSSI, experiential avoidance, and their relationships to specific suicidal behaviours, must be studied longitudinally within individuals. In summary this thesis posits the following:

- Experiential avoidance is a key mechanism that is capable of differentiating both ideators from attempters and high lethality attempters from low-lethality attempters
- High lethality attempters are high in trait experiential avoidance so less reactive to suicidal urges and more disconnected from their values, making a better planned and more lethal attempt more likely with fewer protective influences. These individuals are least likely to disclose suicidal plans. The motives for attempt in this group may also be relief from a chronic absence of positive experience rather than the acute intolerable distress associated with lower lethality attempts
- For a subset of individuals who engage in chronic NSSI they experience intolerable distress which they cope with using NSSI, which is initially effective and negatively reinforced. NSSI becomes less effective over time, so to keep distress at bay an escalation is required in the method of experiential avoidance or frequency. Chronic NSSI engenders increasing levels of trait experiential avoidance, blunted affect and higher levels of disconnection and hopelessness, and given NSSI and suicide attempt exist along a continuum of experientially avoidant strategies, this progression includes suicide attempt. Lower lethality suicide attempts may represent a continuation of this

continuum ending with higher lethality attempts or death by suicide or life-threatening self-injury with ambivalent intent.

### **Strengths and Limitations**

A strength of the systematic review is its' ability to comment in detail on the included articles as the number included was small. Meta-analysis allowed findings to be pooled and the narrative discussion of individual findings facilitated a detailed synthesis of a limited evidence base. The methodological inclusion of post-hoc power calculations, confidence intervals of pooled effect sizes, and an a-priori threshold for the reporting of non-significant findings, clearly outlines the claims the review can make. In particular, non-significant findings are given context regarding whether they are likely to be truly indicative of a null-association or if the current studies are inadequately powered to detect a specific magnitude of effect for each variable. Studies are restricted to a specific population which is likely to be unique regarding lethality risk factors, addressing a critique of previous lethality reviews that samples were included from widely heterogenous populations. Furthermore, the review puts forward a novel theory of distinct pathways for high and low-lethality attempts and produced the novel findings that age and gender do not appear to increase attempt lethality within older adulthood.

By similar tokens, the systematic review was small and based on limited research. Conclusions regarding executive function in particular were drawn from a narrative amalgamation of single findings and the overarching novel theory contested by the review is untested in empirical research. The review was unable to comment on small effect sizes. The inclusion criteria of a mean age of 60 was based on the WHO (2017) definition of an older adult population and the rationale that only four studies would have met inclusion criteria for an age cut-off of over 60. It was considered that including these studies with the knowledge that some participants under 60 would have been included was of more academic and clinical value than excluding them. Mean ages and standard deviations were included to transparently report the degree to which younger adults may have biased results. The small sample size meant moderation analysis was not possible as it would have lacked power. Older, older adults were rare in included studies and given that research in this group is even more limited than in older adults, the generalisability of findings to the older old is unknown.



In terms of the empirical paper, ecological validity was a strength. The variables studied were from real world risk assessments and are available to clinicians in their raw form. The sample sizes were large for suicide research and the sample mirrored the national makeup of those attending IAPT assessments across a range of demographics. IAPT services run on similar risk assessment protocols nationally. As such, findings have a high degree of external validity, and can confidently be used to inform clinical practice across a large swathe of primary mental healthcare. Interrater reliability was consistently high across all variables and suicide attempters were explicitly characterised by lethality, although the study was underpowered to separate these groups. Suicide attempts were restricted to those occurring within two years of assessment and this study was therefore one of few that has explored the ideation-action gap longitudinally. The study was also the first to examine suicide attempt history in this context and the first to explore the ideation-action gap within IAPT. It also represents the first empirical test of the IAPT risk assessment to the authors knowledge.

A critique of the empirical paper is that as a trade-off for ecological validity, some variables did not use validated measures. They relied on clinical notes, penned by clinicians, and as such, rely on accurate reporting by clinicians and are vulnerable to the influence of individual perception and biases. This is also true of the methodology used to distinguish between NSSI and suicide attempt when identifying suicide attempters. The paper relied on stated or implied intent as the distinguishing characteristic, in line with DSM-V (APA, 2013) criteria, which was clear in some cases such as where suicide notes were left, but, given a sizeable proportion of those making attempts concealed this from clinicians, it is likely an unknown number of attempts were missed. Similarly, those making suicide attempts and not coming to the attention of services and those attending services out of area would not have been included. Given the low base-rate of suicidal behaviours, this study, as in all risk factor research, is unable to provide clinicians with a reliable template for risk decisions. A key finding of the ability of the IAPT Phobia Scale to predict suicide attempt is based on an unvalidated measure, although one that is available to assessing clinicians.

A critique of the overall work is the inability of the empirical paper to distinguish high and low lethality attempters. A key outcome of the systematic review is that suicide attempters are not a homogenous group and differ in risk factors by lethality. Care should be taken in generalising the conclusions of the systematic review outside of older adults and similarly the findings of the empirical paper are specific to IAPT (representing both a

strength and limitation). The IAPT population in particular is young to middle aged and predominantly female while male sex and increasing age are risk factors for high lethality attempts and suicide deaths specifically. Both papers investigate suicide attempts as an outcome with the rationale that suicide attempts are harmful in their own right in addition to increasing the risk of future death by suicide. However, the majority of those who die by suicide do so without prior (known) attempt (Han et al., 2016), so the populations studied represent a minority of eventual suicide deaths. The combined work makes tentative hypotheses regarding the suicidal process but acknowledges that non-fatal and fatal suicide attempters are overlapping but heterogenous populations, and these findings do not necessarily generalise to those who die by suicide.

A limitation of the work is that participants were overwhelmingly white. While this is reflective of those in IAPT services and across the east of England (ONS, 2011) the rates of white ethnicity were slightly higher than would be expected in the systematic review. Although largely reflective of the population encountered by clinicians, this research therefore reflects a small subgroup of the human experience: those attending services or agreeing to participate in research after mental health treatment. There is no indication that the theories suggested reflect the suicidal experience of other cultures and ethnicities. This is further relevant as the research and theoretical constructs on which the papers are founded is also based on predominantly white samples. This is a challenge in need of broader work within mental health provision and psychological research.

### **Directions for Future Research**

In line with the above discussion, several future directions for research may warrant further investigation. Congruent with the theoretical underpinning of this thesis, it is suggested that research endeavours to employ a continuum model of suicide, comparing ideators to low lethality attempters, low to high lethality attempters to each other, and high lethality attempts to those who sadly do not survive their attempt.

The IAPT Phobia Scale differentiated attempters and ideators and was able to correctly classify nearly 50% of suicide attempters with perfect specificity. However, the scale is unvalidated. This thesis presents a hypothesis that the scale measures the propensity to employ avoidant coping strategies. Further research may test with theory by exploring face validity in conjunction with established measures of experiential avoidance. The majority of

research investigating the relationship between experiential avoidance and suicide to date has employed the acceptance and action questionnaire (Bond et al., 2011; AAQ), a measure of psychological flexibility of which emotional avoidance is only one of 6 interrelated constructs. As such, future research may benefit from exploring the role of experiential avoidance using specific measures such as the Multidimensional Experiential Avoidance Questionnaire (Gámez et al., 2011, MEAQ) and aim to compare the face validity of the IAPT Phobia Scale against these measures.

The IAPT Phobia Scale is completed by every service user attending an IAPT assessment with a 98% completion rate nationally (NHS, 2019). As such, it may represent a readily available tool to contribute to risk assessment and understanding of suicide, but replication is needed. A study employing similar methodology to the present empirical article, but with a wider scope for identifying suicide attempters, would be valuable and, as IAPT records contain an automated function to retrieve data, a large data pool is available nationally with relatively little resource required. Individual items of the phobia scale could be automatically retrieved with little effort providing a data pool more than capable of understanding and validating its' factor structure.

The relationship between experiential avoidance and suicidality is in need of further exploration in a second area, the ability to differentiate between high and low-lethality attempters. This thesis postulates that high lethality attempters are more experientially avoidant, which allows resistance to impulsive suicidal urges, and in turn facilitates better planned and more lethal attempts. A range of indirect evidence supports this theory, both within the papers contained in this body of work, and from the wider literature. Research testing this theory directly may be warranted. Specifically, direct empirical research testing the ability of anhedonia, alexithymia, social disconnection, emotion regulation, emotional impulsivity and NSSI to distinguish high and low-lethality attempters would be valuable. Experiential avoidance is a fundamental treatment target in Acceptance and Commitment Therapy (Hayes et al., 1996) implying it is not a stable trait and has been evidenced to change over time (Zakiei et al., 2021). Research designs should therefore strive to measure experiential avoidance as close to the time of attempt as possible although trait measures using lifetime attempt severity may give an initial indication of its' ability to differentiate high and low-lethality attempters cross sectionally.

The relationship between NSSI and both ideation to attempt, and low to high lethality transitions, is also in need of further exploration and experiential avoidance may play an important mediating role in indicating which individuals employ NSSI rather than suicide, which employ both, and which progress from one to the other. These relationships are largely untested and the longitudinal study of the course of chronic NSSI, the progression to suicide attempt, and the role of experiential avoidance within an individual, are key areas for future research.

This research added to a fledging literature on concealment of suicidal ideation. Future research should consider whether concealment of suicidality (past or present) enhances risk of future attempt. Qualitative research clearly shows that a key reason for non-disclosure is fear of hospitalisation, and the same research suggests an honest discussion of the threshold and process involved in the use of the mental health act would increase the likelihood of disclosure (Blanchard & Farber, 2016). More research is needed to help clinicians understand how best to attenuate the fear of disclosure and support service users to seek help. It seems vital this is conducted in a bottom-up, qualitative forum and is driven by service users as experts rather than with the goal of tweaking clinician led expertise. Linking of systems, such as the incident reporting system utilised here, allows those concealing suicidal ideation to be identified and may provide clinicians with a tool to explore concealment in clinical practice.

While the empirical study presented within this thesis represents a valuable contribution to the literature in that it examines suicide attempts within the two years following assessment, the suicidal process is likely to be a matter of minutes. Wider studies are required to capture data on an adequate sample of ideators at a point in time in the days, hours or minutes before their attempt. Obvious ethical confounds exist on gathering this type of data but innovative technological approaches may hold some answers. For example, measures delivered by text or voice note at random intervals or monitoring of physiological markers with telemedical technology could provide valuable data. Alternatively, an extension of the record linkage methodology employed in this thesis could produce a sample wide enough to run intergroup analysis on those attempting within days, compared to weeks or months, after their assessment.

### **Implications for Clinical Practice**

A key recommendation of this thesis is that high and low lethality attempters should not be viewed as the same population. Just as different risk factors separate non-suicidal individuals from those with ideation, and in turn those with ideation from those making attempts, those making high and low-lethality attempts are distinct groups, as are those who sadly die by suicide. Risk factors are likely to vary across populations. When assessing risk in older adults, clinicians should be aware that age and gender are unlikely to predict the severity of the attempt. Those with suicidal ideation and high scores on the IAPT Phobia Scale may be the most likely to make a subsequent attempt. Active and passive ideation should be given similar weighting when evaluating risk in IAPT services. The time course of both NSSI and suicide attempt are likely to be indicative of future risk, and an escalation in frequency or methods of experiential avoidant behaviours including NSSI may be indicative of a higher risk profile.

While a disclosure of a suicidal plan is more common in those who attempt suicide than ideators who don't, the vast majority of those disclosing a suicidal plan will not make a suicide attempt. Similarly, while a disclosure of a previous suicide attempt or NSSI is more common in those attempting within the two years following assessment, the majority of disclosures do not predict imminent attempts. Only two thirds of those with a historical suicide attempt will disclose this to their assessing clinician. Clinicians should be wary of basing risk judgments solely on disclosure and aware that there is little sound theoretical basis on which to justify risk assessment decisions. Overall, the IAPT risk assessment, other than the phobia scale, has poor predictive validity and is unable to reliably classify suicide attempters.

### **Personal Comments and Final Conclusions**

Research presented within this thesis is intended to offer insight into the suicidal process and highlight the limitations of suicide risk prediction. Risk assessment that pitches clinicians or researchers as all-knowing guardians with the ability to prevent suicide is empirically unsupported and conceptually flawed. The base rate of suicidal behaviour, even in high-risk settings such as psychiatric inpatients, is such that a hypothetical model with 99% sensitivity and specificity would have a positive predictive value of only 33% (Pokorny, 1983). Our current models have negligible positive predictive value, hampered by the low

base rate of suicidal behaviours, with little usefulness of *high-risk* classifications (Belsher et al., 2019; Carter et al., 2017). Meta-analysis has shown that, with a five year follow up period, half of those attempting suicide were considered low risk and 95% of high-risk patients will not die by suicide (Large et al., 2016) highlighting the futility of attempting to predict suicidal behaviour.

A key driver of therapeutic success across all modalities is the therapeutic alliance which is fundamentally built on trust, genuineness, and an equal balance of power (Beck, 2020; Rogers, 1957). Evidence shows that those with interpersonal trauma and subsequent interpersonal difficulties are among those most at risk of suicide, and that the coping strategies they employ (including suicide) are fundamentally the best they have to deal with their world at that moment (Barnicot et al., 2012). A research and systemic clinical stance that places clinicians and service users in conflict, with clinicians attempting to restrict suicidal behaviour by force and service users attempting to wrest back this control of the limited range of coping strategies they have access to, is unlikely to be helpful for either party. It is also ineffective in reducing suicide given current risk assessment practices frequently rely on honest disclosure. This body of work, and the scant wider literature that exists, suggests service users are hesitant to disclose suicidal thoughts and behaviours and that the threat of incarceration (the ultimate power imbalance) is a key driver of non-disclosure (Blanchard & Farber, 2016).

Conceptually, forced hospitalisation must be capable of preventing individual suicidal acts in the short term and this is oft cited as its' primary purpose (Hunt et al., 2013; Wang & Colluci, 2017). However, very little evidence exists suggesting its' long-term benefit or any benefit at a population level. Indeed, there is a vastly evidenced association between psychiatric hospitalisation and suicide that demonstrates sharp peaks at two time points, admission, and discharge, dwindling over time (Chung et al., 2017; 2019). While it is likely that this is explained in part by the pre-existing increased risk of suicide in the populations who are hospitalised (Hjorthøj et al., 2014), admission itself is frequently argued to increase suicidality through the mechanisms of interpersonal trauma, social disconnection and isolation, impaired employability, and abuse (Hjorthøj et al., 2014; Newton-Howes & Mullen; 2011; Qin & Nordentoft, 2005; Wang & Colucci, 2017). Given hopelessness, powerlessness, disconnection, and burdensomeness are central themes of ideation-action theory and evidence (Dhingra et al., 2016; O'Connor, 2011), one would struggle not to

concede that the experience of enforced hospitalisation may enhance suicidality in some individuals. Additionally, the threat of hospitalisation actively dissuades people from seeking help or disclosing suicidality (Blanchard & Farber, 2016) with the logical conclusion being that this must elevate suicide attempts and deaths for some individuals.

Evidence on the effectiveness of the use of the mental health act to admit suicidal individuals against their will is inconclusive. A discussion of the utility of hospitalisation for purposes other than suicide risk prevention is beyond the scope of this thesis but, briefly, a minority of those hospitalised access psychological therapy (British Psychological Society, 2012), the efficacy on symptom reduction is weak for those that do (Cuijpers et al., 2011) and both psychotherapy and psychopharmacotherapy have been reviewed as able to reduce suicide attempts but not fatalities (Paris, 2021).

Hospitalisation as a tool for suicide prevention can be seen as a trade-off between the right to life for those who would otherwise die by suicide, the right to life of those whose suicidal risk is inflated by hospitalisation or associated treatment hesitancy, and the human right to freedom of those incarcerated against their will. The moral question of who makes these decisions and, indeed if they should be made, is far beyond the scope of this discussion. However, one must ask on what framework are decisions to enforce or offer hospitalisation (or indeed any intervention for suicide risk) made? Empirical research consistently and overwhelmingly shows that we cannot predict or prevent suicide at an individual level based on formulation of risk factors (Stallman, 2020). Even in those rated most at risk, 95% will not attempt within five years (Large et al., 2016). It would be difficult to argue for the 19 of 20 who would not attempt that compulsory admission is beneficial. Clinicians balancing risks of admission do not have evidence on either side of the coin. They cannot know the likelihood of an attempt being made, or the direct and indirect harm resulting from an unnecessary admission (or the likelihood of that admission being unnecessary). Perhaps this explains why hospitalisation as a suicide prevention strategy is a proverbially absent elephant for which international guidance on suicide prevention has no room, for example, *Preventing Suicide: A Global Imperative* (WHO, 2014).

Despite the lack of evidence, clinicians are viewed as having the power to prevent suicide by patients, the public, and legal and clinical systems that hold them accountable for suicide attempts and deaths, in a manor distinct from any other medical field (Lancet Psychiatry, 2020). This stance is equally empirically unsupported as clinicians do not have

the empirical tools to state with any degree of certainty which individuals will attempt suicide; even those with every conceivable risk factor will still represent a group in which attempts are in the minority (Large et al., 2016). Research suggesting which individuals will act imminently is almost non-existent, further highlighting the stark imbalance in the responsibility placed on health care professionals for preventing suicide and their empirically evidenced ability to do so. Clinicians cannot renounce this responsibility with legal precedent considering failure to detain those who die by suicide negligence and a breach of right to life under Article 2 of the European Convention on Human Rights (UK Supreme Court, 2012).

National policy continues to endorse the validity of risk assessment paradigms in the US with the (US) National Action Alliance for Suicide Prevention's Research Prioritization Task Force highlighting imminent suicide risk prediction at an individual level as a key goal (Claassen et al., 2014). Additionally, standardized protocols and risk assessment tools are key clinical and research priorities highlighted by the (US) National Strategy for Suicide Prevention (US Department of Health and Human Services, & Office of the Surgeon General, 2012). In the UK, While NICE (2012) guidelines explicitly state that risk assessment tools should not be used for suicide or NSSI prediction, risk assessment pro-formas remain prevalent in clinical practice, and the limitations of risk prediction are not explicitly outlined to clinical students across clinical psychology or IAPT (Richards & Whyte, 2011).

The purpose of structured risk assessment could be argued to lie in fundamentally quelling the anxiety of systems and individuals within those systems, in addition to providing a legal defence in the case of suicide, as there is little evidence to suggest it benefits patients. One wonders if an avoidance of this anxiety contributes to the absence of a discussion of hospitalisation in international guidance. Rogers (1957) champions genuineness as a necessary condition for a successful therapeutic relationship but the discrepancy between what clinicians are purported to be able to offer in terms of successful risk assessment and the reality is anything but genuine. In the context of concrete evidence that patients hesitate to seek help or discuss suicidality, the reliance of clinical systems, and clinicians, on an ineffective individual risk assessment paradigm is harmful, and arguably costs the very lives clinicians enter the profession to save.

The problem is far easier to outline than the solution. This thesis suggests several starting points. Firstly, that the purpose and efficacy of suicidal risk assessment should be made clear to all those embarking on a career in which they might encounter suicidal



individuals which includes most in caring professions. Structured risk assessment forms such as the one employed nationally by IAPT have little to no real-world predictive value. Clinicians should outline the purpose of the exercise and consequences of disclosure (including threshold for hospitalisation), arming the service user with the tools to make a disclosure (or choose not to) with informed consent, genuineness and equal power.

The suicidal voice is vastly lacking in a research field, that despite the best of intentions, perpetuates an empirically invalidated risk factor paradigm of suicidology, with this thesis being no exception. Research genuinely designed by suicidal individuals from across the suicidal continuum, and those currently experiencing suicidal thoughts, appears a necessary first step to change. For this to occur, the field of academia in general, and suicidology specifically, must actively welcome research of this nature regardless of the authors background or scientific qualification, and journals should seek to publish informal or alternative article types. Authors must be welcomed without fear of consequence or stigma, and it must be acknowledged that research questions prioritised by service users may not fit the current clinical or research paradigms.

The view that suicide is predictable and preventable is frequently evidenced in well intentioned policy and research, and reviews such as zero-suicide, and the culture of blame being placed on clinicians for failing to prevent it. Any shift away from this view is likely to be highly distressing for academics, clinicians, family members and friends of those who have been bereaved by suicide and those who will be in the future. However, as Carl Rogers (1957) suggests, genuineness is necessary for healing, as Brenne Brown (2012) suggests, shared vulnerability is what connects us, and as Thomas Joiner (2005), and a litany of subsequent research, suggests, genuine interpersonal connectedness is as good a tool for suicide prevention as any we have. Suicide prediction at an individual level has not progressed in 50 years (Franklin et al., 2017) and suicide is a coping strategy as old as mankind itself. Population level interventions addressing the root cause of distress including systemic discrimination, isolation, social support, and employment are likely to be far more effective than anything achieved at an individual level (Stallman, 2020).

Despite the irony of this being the conclusion of a thesis that is arguably part of the problematic risk assessment paradigm, I suggest change is needed and that sharing the burden of distress with those we seek by facing up to the futility of suicide prediction could represent a necessary starting point. The ultimate conclusion of the work is that the IAPT risk

assessment, like all risk factor paradigms, is ineffective and iatrogenic but that if it is to remain in practice, its' purpose and hospitalisation threshold should be made clear to all who are asked to partake.

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## Appendices

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## Appendix A

### Author guidelines

#### ***Crisis: The Journal of Crisis Intervention and Suicide Prevention***

##### **Aims and Scope of Crisis – The Journal of Crisis Intervention and Suicide Prevention**

Crisis – The Journal of Crisis Intervention and Suicide Prevention is an international periodical that publishes original articles on suicidology and crisis intervention. Papers presenting basic research as well as practical experience in the field are welcome. Crisis also publishes potentially life-saving information for all those involved in crisis intervention and suicide prevention, making it important reading for clinicians, counselors, hotlines, and crisis intervention centers. Crisis – The Journal of Crisis Intervention and Suicide Prevention publishes the following types of articles

##### Research Trends

Papers for this section may be up to 4,500 words, including abstract, text, references, notes, appendices, as well as figures and tables.

##### Short Reports

Papers for this section may be up to 2,000 words, including abstract, text, references, notes, appendices, as well as figures and tables.

##### Clinical Insights

These are clinically oriented papers and may be up to 4,500 words, including abstract, text, references, notes, appendices, as well as figures and tables.

##### Systematic Reviews

These are papers that report on the results of multiple studies and may be up to 6,000 words, including abstract, text, references, notes, appendices, as well as figures and tables. Systematic Reviews should conform to PRISMA guidelines (see <http://www.prisma-statement.org/>).

##### Registered Reports

These papers are submitted and evaluated in a two-stage process. The Stage-1 manuscript contains the theoretical background, method, and proposed data analysis for a planned but not yet conducted study. If the Stage-1 manuscript receives an in-principle acceptance, the author(s) must preregister it in an independent institutional repository (e.g., <https://osf.io>) before proceeding with data collection and analysis in accordance with the accepted protocol. The Stage-2 manuscript contains the sections from the Stage-1 manuscript with the addition of the results and discussion sections. Stage-2 manuscripts are automatically accepted, irrespective of the directionality of the results, unless the study has diverged from what was originally proposed. The word limit for Stage-1

manuscripts is 3,500 and for Stage-2 manuscripts it is 4,500, including abstract, text, references, notes, appendices, as well as figures and tables.

### Stage 1

At Stage 1, the manuscript must contain an Introduction section that provides background and the specific hypotheses to be tested. Successful submissions will use established methods to test specific predictions. The Registered Report format is not well-suited to purely exploratory research and is a mechanism for confirming/disconfirming predictions.

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Please make sure to avoid stigmatizing language concerning suicidal behavior by using neutral terms. Here are some examples:

#### Stigmatizing Language Neutral Language

to commit / complete suicide to die by suicide; to end his/her life

a successful suicide / attempt a fatal suicide attempt

an unsuccessful suicide a non-fatal suicide attempt

a failed attempt a non-fatal suicide attempt

suicide victims / cases those who died by suicide

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July 2020

## ***British Journal of Clinical Psychology***

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*Author Guidelines updated 23 July 2021*



## Appendix B

### Quality Rating Scales

#### *Newcastle Ottawa Scale Adapted for Cross Sectional Studies*

#### Selection

**1. Representativeness of the sample:**

- a. Truly representative of the average suicide attempter in the target population (older adults >60 years). \* (all subjects or random sampling)
- b. Somewhat representative of the average suicide attempter in the target group (older adults >60 years). \* (non-random sampling)
- c. Selected group of users/convenience sample.
- d. No description of the derivation of the included subjects.

**2. Sample size:**

- a. Justified and satisfactory (including sample size calculation). \*
- b. Not justified.
- c. No information provided

**3. Non-respondents:**

- a. Proportion of target sample recruited attains pre-specified target or basic summary of non-respondent characteristics in sampling frame recorded. \*
- b. Unsatisfactory recruitment rate, no summary data on non-respondents.
- c. No information provided

**4. Ascertainment of the exposure (lethality group high vs low):**

- a. Objective validated instrument corroborated with medical records or objective accounts from onlookers. \*\*
- b. Convention, standardised definition, or objective validated instrument, applied to uncorroborated self-report (or where a validated instrument has been used but the data sources are unspecified)\*
- c. No description/clinician judgement

#### Comparability

**1. Comparability of subjects in different outcome groups on the basis of design or analysis. Confounding factors controlled.**

- a. Data/ results adjusted for relevant predictors/risk factors/confounders e.g. age, sex, excluded participants \*\*

- b. Groups compared and inferentially shown to be equivalent by sociodemographic characteristics and/ or key confounders by ANOVA or equivalent\*
- c. Data/results not adjusted for relevant confounders /information not provided/ groups not equivalent on sociodemographic characteristics

**Outcome**

**1. Assessment of outcome (High lethality vs low lethality attempter grouping):**

- a. Objective validated instrument corroborated with medical records or objective accounts from onlookers. \*\*
- b. Convention, standardised definition, or objective validated instrument, applied to uncorroborated self-report (or where a validated instrument has been used but the data sources are unspecified)\*
- c. No description/clinician judgement

**2. Statistical test**

- a. Statistical test used to analyse the data clearly described, appropriate and measures of association presented including confidence intervals and probability level (p value). \*
- b. Statistical test not appropriate, not described or incomplete.

Very Good Studies: 9-10 points

Good Studies: 7-8 points

Satisfactory Studies: 5-6 points

Unsatisfactory Studies: 0 to 4 points

This scale has been adapted from the Newcastle-Ottawa Quality Assessment Scale for cohort studies to provide quality assessment of cross-sectional studies

**NOS quality rating responses**

<b>Study</b>	<b>S1.</b>	<b>S2.</b>	<b>S3.</b>	<b>S4.</b>	<b>C1.</b>	<b>O1.</b>	<b>O2.</b>		<b>Total</b>	<b>Rating</b>
Dombrovski et al., 2011	C - 1	B - 0	C - 0	A - 2	A - 2	A - 2	A - 1		8	Good
McGirr et al., 2012	C - 1	A - 1	C - 0	A - 2	A - 2	A - 2	A - 1		9	Very good
Richard-Devantoy et al., 2015	C - 1	B - 0	C - 0	A - 2	A - 2	A - 2	A - 1		8	Good
Szanto et al., 2014	C - 1	B - 0	C - 0	A - 2	A - 2	A - 2	A - 1		8	Good
Szanto et al., 2015	C - 1	B - 0	C - 0	B - 1	A - 2	A - 2	A - 1		7	Good
Vanyukov et al., 2017	B - 1	B - 0	C - 0	A - 2	A - 2	A - 2	A - 1		8	Good
Wiktorsson et al., 2016	B - 1	B - 0	A - 1	B - 1	A - 2	C - 0	A - 1		6	Satisfactory

**Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross Sectional Studies**



**JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies**

Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Author \_\_\_\_\_ Year \_\_\_\_\_ Record Number \_\_\_\_\_

	Yes	No	Unclear	Not applicable
1. Were the criteria for inclusion in the <u>sample clearly defined?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Were the study subjects and the setting described in <u>detail?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Was the exposure measured in a <u>valid and reliable way?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were <u>objective, standard criteria used for measurement of the condition?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Were <u>confounding factors identified?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were <u>strategies to deal with confounding factors stated?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were the <u>outcomes measured in a valid and reliable way?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was <u>appropriate statistical analysis used?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**JBI Tool Ratings**

<b>Study</b>	<b>1.</b>	<b>2.</b>	<b>3.</b>	<b>4.</b>	<b>5.</b>	<b>6.</b>	<b>7.</b>	<b>8.</b>	<b>Total</b>
Dombrovski et al., 2011	1	0	1	1	1	1	1	1	7
McGirr et al., 2012	1	1	1	1	1	1	1	1	8
Richard-Devantoy et al., 2015	1	1	1	1	1	1	1	1	8
Szanto et al., 2014	1	1	1	1	1	1	1	1	8
Szanto et al., 2015	1	1	1	1	1	1	1	1	8
Vanyukov et al., 2017	1	0	1	1	1	1	1	1	7
Wiktorsson et al., 2016	1	1	1	0	1	1	0	1	6

## Appendix C

### Data Extraction Procedure

#### Data Extraction Procedure

Only pre-existing data was used in this study. All data extraction was performed by clinicians who routinely access this data as standard clinical practice and no information that can be classified as “personal information” (GDPR, 2018) was accessed by the research team. Only fully anonymised final quantitative data spreadsheets were passed to the research team. Four phases to data extraction are outlined:

Phase 1: Automatically generated data drawn from IAPTUS

Phase 2: Participants attempting suicide within one year of IAPT assessment identified using Datix forms

Phase 3: Coding of a subset of freetext IAPTUS risk assessments

Phase 4: Data anonymisation and transfer to research team

#### Phase 1: Automatically generated data extraction

For all individuals referred to IAPT, a patient record is created and stored on an IAPT specific clinical database named IAPTUS. As part of routine clinical practice, several variables are populated by clinicians using multiple-choice drop-down menus or automatically uploaded when patients fill in electronic questionnaires. This *automatically generated data* is stored on IAPTUS and can be easily and rapidly retrieved using a pre-existing function in IAPTUS.

A request was made by K.L (deputy service manager) to M.G (data performance analyst) requesting ‘variables of interest’ (outlined below) to be retrieved from IAPTUS for all individuals completing an IAPT assessment from 01/01/2015 to 01/03/2020 and meeting inclusion criteria (thereby excluding all individuals under 18 years of age and not attending their assessment). 79314 unique records were selected. M.G (data analyst) used the pre-existing IAPTUS function to automatically populate an excel spreadsheet with requested variables.

*Variables of interest* refers to variables that meet the following criteria.

- Variables are hypothesised by O'Connor's (2011) IMV, model or more recent ideation-action research, to contribute to either the development of suicidal ideation (motivational factors) or the transition to suicide attempt (volitional factors); or allow participants to be grouped by the presence of suicidal ideation or suicide attempt.
- Variables are mandatory to be completed and recorded at assessment as standard practice with complete datasets obtained for 98% of contacts nationally (NHS, 2019).
- A) Variables are "forced entry" meaning it is not possible for a clinician to complete an assessment record without entering all variables  
OR B) Variables are checked in supervision (or data analysis reporting) to ensure they are accurately assessed and recorded.

In line with this criteria the following variables were requested:

***PHQ-9 total score***

The PHQ-9 is a nine-item screening measure for depression with excellent reliability and validity (Kroenke et al., 2001).

***PHQ-9, question nine score***

Question 9 asks service users to rate the frequency of "Thoughts that you would be better off dead or of hurting yourself in some way" in the previous two weeks on a 4-point likert scale from 0 (not at all) to 3 (nearly every day).

***GAD-7 total score***

The GAD-7 is a seven-item screening measure for general anxiety disorder with excellent validity and reliability; Spitzer et al., 2006).

***Problem descriptor***

A pseudo-diagnosis given by the assessing clinician.

### **Work and Social Adjustment Scale**

This scale (appendix e) measures self-perceived difficulties in social functioning with excellent psychometric properties (Zahra et al., 2014). Individual items pertaining to functioning in the five domains of work, social, private hobbies, home management and relationships were also requested.

***IAPT Phobia Scale.*** An unvalidated IAPT specific measure assessing the degree to which an individual would avoid situations or activities due to a fear of embarrassment, panic attacks or specific phobias.

### **Demographic and extraneous variables**

These included age, gender, employment status, sexual orientation, religion, ethnicity, carer status, disability, armed forces status, long term condition diagnosis, medication status and number of attended IAPT treatment sessions.

### **Phase 2: Identification of participants attempting suicide within one year of IAPT assessment using Datix forms**

A four-stage process was used to identify a subset of participants who have made suicide attempts within two years of IAPT assessment using Datix forms as agreed with all data gatekeepers.

- 1) A request was submitted by K.L (deputy service manager) to the NHS National Patient Safety Agency (NPSA) for a list of NHS numbers pertaining to Datix forms classified as “self-harm” occurring in Norfolk or Suffolk between 01/01/2015 to 01/03/2021. The patient safety officer (K.W) used secure NHS to NHS email to send this list of NHS numbers to M.G (IAPT data-analyst).
- 2) The data-analyst (M.G) cross referenced this list of Datix with the NHS numbers on the data spreadsheet obtained in phase one to identify participants who have had an IAPT assessment and have had a Datix categorised as “self-harm” recorded in the specified period. These



matching participants were marked on the data spreadsheet which was sent to K.L (deputy service manager) by secure NHS to NHS email.

- 3) A further request was sent by K.L (deputy service manager) for the date, subcategory (method), severity and freetext description of Datixs matching the IAPTUS list only. The patient safety officer (K.W) sent an excel spreadsheet containing this information to K.L (deputy manager) by NHS-NHS email.
- 4) Datix's were coded to identify suicide attempts by two deputy service managers, K.L and N.R (as they receive self-harm Datixs as standard practice). Incident descriptions were scored on the Beck Lethality Scale with inter-rater reliability calculated. Suicide attempt criteria was defined by the DSM-V definition of a suicide attempt, requiring any degree of suicidal intent and non-zero harm, and/ or a score of 4 or above on the Beck Lethality Scale. Training was provided by the lead researcher. This data was added to the phase 1 data spreadsheet.

### ***Phase 3: Coding of a subset of IAPTUS risk assessments***

In each IAPT assessment, a standardised structured risk assessment is completed by the assessing clinician following a template, regardless of whether any risk is identified. Every question on this template is asked to every service user. A coding scheme (appendix e) was devised and iteratively piloted until percentage agreement reached 90%. Assistant PWP's had prior research training and received specific training in the coding scheme from the first author. Six assistant PWP's coded risk assessment forms from a subset of participants.

Coding all participants from the automatically generated dataset was not feasible. This study aimed to compare those with a suicide attempt (historical or within one year of assessment) to those with ideation only. Therefore, in addition to all

participants with a datix assessment postdating their IAPT assessment meeting inclusion criteria, a random sample of 2227 other participants from the automatically generated dataset were coded. 68 participants were subsequently excluded as they had an incomplete dataset. 2159 participants without datix records were therefore included. 1430 datix incident reports were identified pertaining to 235 individuals attending an IAPT assessment within our inclusion period and 85 included in the empirical study presented in this thesis.

At the time of study planning, prevalence rates of suicidal behaviours and NSSI in IAPT are unknown so estimates were conducted based on Nock et al.'s (2008) population prevalence estimates of 9.1% and 2.7% for lifetime suicidal ideation and lifetime suicide attempt respectively. A small allowance for the IAPT data completion rate of 98% was included. A sample of 2250 would be expected to contain 2205 complete records, 201 participants with suicidal ideation and 60 participants with a historical suicide attempt. A further assumption was made that rates of suicidal behaviours would be higher in the study sample than in the general population. The number of participants making a suicide attempt within two years of assessment and being picked up by datix reports was impossible to know but was estimated at 50-200 by a senior therapist. As such a minimum sample of 50 suicide attempters within two years of assessment, 201 ideators (lifetime) and 60 suicide attempters (lifetime history) was anticipated.

The final sample was therefore designed to sit within service capacity considerations and provide adequate data for a range of research questions and analysis. For the empirical paper presented in this thesis, Harrell et al.'s (1984) power recommendation specified a minimum of 10 participants in the smallest group per variable for a binary logistic regression predicting group membership (attempter vs ideator), allowing a minimum of six variables to be entered as predictors in the main analysis.

The coding scheme (detailed in full in appendix e) was constructed from the following definitions and measures:

***Passive Suicidal ideation***, defined in line with the Columbia-Suicide Severity Rating Scale (C-SSRS)

**Active suicidal ideation**, defined in line with the C-SSRS

**Suicide plan**, defined in line with the C-SSRS

**Non-suicidal self-injury** “the intentional destruction of body tissue without suicidal intent and for purposes not socially sanctioned” (Klonsky, 2014)

**Historical suicide attempt** Defined in line with the DSM-V (APA, 2013) definition of “a self-initiated sequence of behaviours by an individual who, at the time of initiation, expected that the set of actions would lead to his or her own death”

**Historical suicidal ideation** Including passive or active suicidal ideation or suicide plan as defined by the C-SSRS occurring two or more weeks prior to IAPT assessment

**IAPT Assessment Outcome.** Indicating the decision made at assessment to offer treatment within IAPT (step two or step three)

The variables were selected and defined in consultation with data analyst, senior therapist, and deputy service manager to meet the following criteria:

- Variables are mandatory to be asked and recorded in every assessment.
- Variables are checked in supervision (or data analysis reporting) to ensure they are accurately assessed and recorded.

K.L (deputy service manager) transferred each assistant PWP a list of NHS numbers (corresponding to the participants they are required to code) by secure NHS-NHS email. As such, they only accessed the subset of participants they are asked to code. This spreadsheet was transferred to K.L (deputy service manager) by NHS-NHS email and K.L (deputy service manager) added this data to the master data spreadsheet using NHS numbers to link data. On acknowledgement that the data has been received, assistant PWPs deleted all emails and data pertaining to this project other than that which is stored as routine clinical practice.

#### **Phase 4: Anonymisation and transfer to research team**

Once all data transfer to K.L (deputy service manager) was completed and data was entered into the master spreadsheet, all patient identifiable data variable columns (NHS numbers) were removed from the spreadsheet. This was performed by K.L (deputy service manager) and confirmed by M.G (data analyst). This spreadsheet was then transferred via secure NHS-NHS email to the research team.

### ***Complex case and multiple episode protocol***

- In the case of participants with multiple episodes of care within IAPT where no relevant datix existed, only the most recent assessment was used. This is based on the rationale that this gives the most time for suicidal behaviours to have occurred.
- Where a single datix exists and an individual has multiple IAPT assessments, the most recent assessment that precedes the datix was used.
- Where multiple datixs existed, all were coded for suicidal intent (y/n) and BLS score. For each participant, only the single incident with the highest BLS score or suicidal intent was included. In the case of multiple incidents with identical BLS scores, and all with stated or implied suicidal intent, the incident with the shortest time following IAPT assessment was selected.
- If no datix met criteria for suicide attempt the individual was coded as NSSI and not included in the empirical paper presented in this thesis.

## Appendix D

### IAPT coding scheme

#### [aPWP Coding Scheme](#)

**The data collection for this study is based on the IAPT assessment specified in the data collection worksheet only.**

- Each aPWP will be sent an excel spreadsheet with participants to be coded and assessment date to be coded
- **Only** the clinical contact matching the assessment date and risk tabs (version 1 and 2) should be used for coding. Where no risk information exists in these tabs, the participant should be highlighted in red, all variables coded as “missing data” and flagged to the lead researcher
- **Only** risk assessment data from the specified assessment date should be used for coding (except in the case of the “assessment outcome” variable).

#### **Coding principles:**

- It is essential to code according to the listed definitions for each variable specified in the coding scheme below.
- If a participant does not meet the criteria defined for each variable, they should not be coded for that variable. This holds true even where participants intuitively appear to meet common clinical conceptualisations of a variable but do not meet specified criteria.

## **Variables**

### **Current suicidal ideation** (Denied, passive, active, plan, missing data)

#### **a) Passive**

Defined as “a passive wish to be dead without intent to act on these thoughts”

Include dreams or suicidal imagery. Participants reporting dreams meeting criteria for active suicidal ideation or suicide plan should still be coded only for passive suicidal ideation unless additional thoughts or images meeting criteria for active suicidal ideation or plan are met.

#### *Examples*

“I’ve thought about killing myself”

“wish to fall asleep and not wake up”

#### **b) Active**

Defined as a conscious desire to inflict self-harming behaviours, and the individual has any level of desire, above zero, for death to occur as a consequence. This may include thoughts or images but not dreams.

This group must have stated or implied intent to die or a stated or implied method (for example overdose).

Suicidal intent may be inferred from a clearly lethal method that could not reasonably be expected to result in non-lethal self-harm. This includes firearms, explosives, and use of an external vehicle.

Do not include indifference to an accidental demise which would occur if steps are not taken to maintain one's own life unless suicidal intent is explicitly stated. For example, do not include thoughts or acts of carelessness when crossing the road, indifference to medication adherence and self-neglect unless it is stated that the intention of this behaviour is at least in part death.

#### *Examples*

“I just want to die, I’ve thought about taking an overdose”

“I keep getting this image of putting a hose in my car exhaust”

### **c) Suicide plan**

Must meet criteria for “active suicidal ideation” with details of plan fully or partially worked out. Must meet criterion A **and** one or more of criterion B:

A) Named or implied suicidal method (**required**)

B) (**one or more**)

- Timeframe (this may include vague timeframe such as “next few weeks”)
- Location (this may include vague location such as “tree”, “home” or “cliff”)
- Preparations for suicide (including researching times means or methods, gathering materials, writing a suicide note or stated knowledge of times when suicide would be most likely to result in death or be least impactful to others).
- Stated access to suicidal means (for example rope, medication perceived to be of potentially lethal quantity)

### *Examples*

“I’d go to the station by my house, I’ve checked the timetable”

“I know the bridge, it’s quietest at night and no one would stop me then”

“I’ve got a few paracetamol in my room that I’d use” (n.b the likely severity of harm is not relevant to coding but the self-perceived harm. In this case while a few paracetamol is unlikely to be lethal, the perceived intention is suicidal)

### **d) Denied**

The participant has not met criteria for current passive or active suicidal ideation or suicide plan as defined above. This includes cases of brief or generalised risk assessments stating “no risk”, “no current risk” or similar. A statement that ideation has been discussed but denied is required. If no indication that risk has been assessed is evidenced, the participant should be coded as “missing data”

*N.B passive SI, Active SI and suicide plan are conceptualised as distinct phenomena. One participant should only be coded as having either no ideation, passive ideation, active ideation or suicide plan, not a combination of two or more of these phenomena. Auditory hallucinations should be considered as thoughts.*

**Historical suicide attempts/ ideation** (Historical suicidal Ideation, historical attempt, denied, missing data)

***a) Historical suicidal ideation (without attempt)***

Active or passive suicidal ideation or suicidal plans as defined above occurring more than two weeks prior to IAPT assessment. Include self-aborted or interrupted suicidal behaviours where suicidal actions were initiated with suicidal intent but the participant changed their mind or were interrupted by others before any harm occurred. For example, counting out medication without any ingestion, climbing a tree without attempt to hang, traveling to a bridge and being interrupted before jumping.

***b) Historical suicide attempt***

Defined as “a self-initiated sequence of behaviours by an individual who, at the time of initiation, expected that the set of actions would lead to his or her own death”. Include any suicide attempt up to the moment of the assessment. Participants must have stated suicidal intent pertaining to the action in question specifically or self-report their behaviour as a suicide attempt.

Include any action with perceived lethal consequences and suicidal intent, including behaviours that did not result in significant harm. For example, taking one paracetamol would be coded as a suicide attempt if the participant stated suicidal intent or self-reported this as a suicide attempt.

Do not include cases where the intended suicidal method was not enacted, for example in cases where the participant changed their mind or was interrupted by others before any harm occurred.

Do include attempts where **any** degree of harm occurred but the attempt was then aborted or interrupted. For example, do include taking one paracetamol before then changing one’s mind or being interrupted.



### **c) Denied**

The participant has not stated any historical suicidal ideation or attempts as defined by the above criteria. This includes cases of brief generalised risk assessments stating “no risk”, “no historical risk” or similar. A statement that historical suicidality has been discussed but denied is required. If no indication that risk has been assessed is evidenced, the participant should be coded as “missing data”

*N.B. For all suicidal behaviours above do not include self-neglect unless this is recorded in response to a question regarding a suicidal behaviour or is self-defined as a suicidal behaviour by the participant. This criterion is applicable to current and historical suicidal ideation and historical suicide attempts.*

### **Current Non-suicidal self-injury (Denied/ ideation/ action /missing data)**

#### **a) Actions**

Include any behaviour meeting the definition of “the intentional destruction of body tissue without suicidal intent and for purposes not socially sanctioned” enacted within two weeks of the assessment date, or defined as “current” by the participant.

Example behaviours include cutting, burning, scratching, body part banging, needle sticking and interfering with wound healing.

Do not include self-neglect unless this is stated in response to a question regarding “self-harm” or this is self-defined as “self-harm” by the participant.

Do not include tattoos or piercings unless explicitly stated that the intention was “self-harm” or this was stated in response to a question regarding self-harm

#### **b) Ideation**

Thoughts, dreams or images pertaining to non-suicidal self-injury actions as defined above occurring a) within the two weeks preceding assessment date or self-reported as current **and** b) where the participant does not meet criteria for current non-suicidal self-injury actions.

### **c) Denied**

The participant has not stated any ideation or actions meeting the above non-suicidal self-injury criteria. This includes cases of brief generalised risk assessments stating “no risk”, “no historical risk” or similar. A statement that non-suicidal self-injury has been discussed but denied is required. If no indication that risk has been assessed is evidenced, the participant should be coded as “missing data”

#### **Historical non-suicidal self-injury actions** (denied/ yes /missing data)

Defined in line with “non-suicidal self-injury actions” as above but occurring more than two weeks prior to assessment or defined as historical by the participant.

Historical “non-suicidal self-injury ideation” should not be coded under any variable.

#### **IAPT Assessment Outcome** (Assessed only/ treatment/ missing data)

The clinical contact titles immediately following a participant’s assessment should be used to code this variable. Only contacts within the same episode as their assessment date listed on the coding spreadsheet should be considered. No other information should be used.

#### ***Assessed only***

Client attended one or fewer clinical contacts categorised as “step 2”, “step 3” or “resilience pathway”. These include but are not limited to the following titles: CCBT, Group, GSH, CBT, Counselling and Resilience.

#### ***Treatment***

Client attended two or more clinical contacts categorised as “step 2”, “step 3” or “resilience pathway”. These include but are not limited to the following titles: CCBT, Group, GSH, CBT, Counselling and Resilience.

**PHQ9 Q9 score at IAPT assessment (0/ 1/ 2/ 3/ missing data)**

Only the PHQ-9 attached to the Wellbeing Advice Session listed on the data spreadsheet should be considered

In the case of missing data, this case should be highlighted in red on the data spreadsheet and flagged to the lead researcher.

*N.b – The code “missing data” should only be used if a risk assessment is missing or not available in either the “clinical contact” or “risk assessment” tab. In the case of brief or non-specific risk assessments such as “no risk”, all risk variables should be coded as “denied”. In the case of missing risk assessments, all data variables should be coded as “missing data” and the client highlighted in red in the data spreadsheet.*

## **Appendix E**

### **Ethical Considerations**

#### **Consent**

This project did not require informed consent under section 251 of the National Health Service Act 2006 and the Health Service (Control of Patient Information) Regulations 2002. Only pre-existing, fully anonymised secondary data that was collected and recorded as standard practice would be accessed. This secondary data was collected and stored by the data controllers under the lawful basis of vital interests and public task (Data Protection Act, 2018), within the public interest and in the interest of improving patient care. It relates to an activity which had a medical purpose (as defined in s251 (12) of the NHS Act 2006) and relates to information which was generated in circumstances leading to an obligation of confidence. Therefore, it would not have been necessary to obtain consent to process or transfer personal information when the data controllers originally collected it.

#### **Confidentiality**

All coding and data transfer was performed by clinicians who routinely access the relevant data as part of standard practice. All clinicians accessing patient identifiable information are employed by the data controller of that information (NSFT) and all information has a direct benefit to the service from which it is produced.

No patient identifiable information will be accessible by the research team at any stage of this project. Only a single anonymised data spreadsheet with randomly generated participant numbers will be passed to the research team. The research team will have no method of linking these numbers to any patient identifiable information. As such, it will not be possible for any patients to be identified and the data required would not constitute “personal information” under GDPR (2018) laws.

#### **Recognition of Participants**

Only anonymised quantitative variables will be passed to the research team posing no risk of recognition. All coding was performed by clinicians who routinely access

this data as standard practice posing no additional risk over the risk of recognition posed by routine clinical practice. All assistant PWP's had been recruited to the service after the data collection period and had not held a clinical role within NSFT previously so will not have worked professionally with any participant in this study. As such, coding risk assessments by assistant PWP's does not present a risk of recognition in a professional capacity. Deputy service managers receive unredacted data as standard practice and as such, no additional risk of recognition is posed by the requirement of this study for them to view redacted subsets of the full data which they have already viewed.

### **Wellbeing**

In the proposed protocol, clinicians will not perform tasks outside of their standard clinical roles in which they assess suicide risk daily. Coding of pre-existing clinical notes is therefore expected to have minimal impact on emotional wellbeing; however, clinicians have access to weekly supervision with a qualified senior clinician and will be able to access staff support and NHS support services if required. PWP's actively volunteered to contribute to this project and were able to discontinue their involvement at any point without any personal or professional penalty. The number of participants to be coded per week was restricted to approximate three hours total spread over the week. PWP's were able to decline to code any participant without giving a reason.

Although only a spreadsheet containing anonymised data variables will be accessed by the research team, it is acknowledged that this is a sensitive topic area in which to be researching. The lead researcher is a trainee clinical psychologist who assesses suicide risk on a regular basis and has previously worked as a PWP within a different IAPT service. Regular supervision with Dr Adrian Leddy (Clinical Psychologist employed by NSFT) was accessed and both NHS and university student support services were available to the author.

### **Transparency**

According to the GDPR (2018) laws, as the data held for the proposed research will not constitute personal data at the point of transfer, the GDPR transparency requirements do not apply.

## **Data storage and transfer**

Whilst the data will not constitute personal data, GDPR (2018) good practice was followed in handling data and all data will be sorted in a password-protected excel spreadsheet, which only the author and named research supervisor accessed. No printed documents were required. On successful transfer of the anonymised data spreadsheet to the research team, Wellbeing Norfolk and Suffolk will destroy all emails, files and data copies relating to this project, other than the raw data that is stored on IAPTUS and the datix database as standard clinical practice. Following completion of the study, the study and its data will come under the governance of UEA. As such Dr Adrian Leddy, as primary supervisor, will become the data custodian and retain responsibility for data storage once the author has left the university. This data will constitute only the fully anonymised spreadsheet received by the research team. The UEA data storage policy indicates that data is archived for a period not less than 10 years after the end of the study.

## **Justification of resources required**

Research in this field is hampered by the low base rate of suicidal behaviours creating difficulties in attaining a powered sample size. A second challenge exists in recruitment bias where in recruiting historical suicide attempters, only a certain demographic is accounted for and, additionally, gathering data only after the event, limits the type and accuracy of data that can be obtained. Longitudinal studies normally require a huge amount of resource as the ONS (2018) estimate the UK suicide rate as 11.2 individuals per 100,000. This means, in order to obtain a large enough sample of suicidal behaviours, and data on enough variables of interest, that allow meaningful interactions to be inferentially investigated, a huge amount of resource would normally be required.

The proposed methodology in this study represents a rare opportunity to use pre-existing data, limit sampling bias and observe variables of interest naturalistically as data is recorded as standard practice. This research will provide clinicians with information on risk factors that are routinely assessed, in a setting where clinicians

have an opportunity to intervene. To the authors knowledge no other study has attempted explore the ideation-action gap in an IAPT setting.

Although the author acknowledges that study required considerable resource, in the context of the challenges of suicide research, the methodology was designed to prioritise the most efficient use of resources to produce the most valuable and clinically useful data. The project was co-designed with Wellbeing Norfolk and Suffolk to answer research questions that they feel are fundamental to enhancing their ability to prevent suicide in line with the national suicide prevention strategies' (Department for Health and Social Care, 2012) key aims of research and enhanced mental health provision. The findings of this research may reduce suicide attempts and loss of life through suicide and the resources required are set in the context of the necessity, urgency and benefits of research addressing the ideation-action gap.

Assistant PWPs conduct research and evaluation tasks as part of their job plan and in co-developing this project, Wellbeing Norfolk and Suffolk confirmed they had the capacity and resources available to complete this project. They stated that, as a result of pre-existing mechanisms for remote working, their service capacity has not been impacted by COVID-19. They further stated that as the assistant PWPs job role includes research, this research did not impact on the service's COVID response.

To ensure the service receive maximum benefit findings of this project will be presented at a regularly scheduled PWP development day and a service report produced. Findings will be further disseminated by publication in a peer reviewed journal (if accepted) and all individuals making significant contributions will be listed as co-authors in any publication.

## Appendix F

### Portfolio Bibliography

#### Overall thesis portfolio bibliography

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