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ORIGINAL ARTICLE

Developing a Dynamic Understanding of Risk Factors for People Admitted to Long-term High Dependency Units

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Abstract Even with developments in supporting people with enduring psychosis, some people living with these difficulties still require specialised care in inpatient rehabilitation facilities. To optimise the support provided a service evaluation was conducted for people admitted to a Long-term High Dependency Unit service. Data collected routinely with the Short-Term Assessment for Risk and Treatability tool was used to identify dynamic risk factors for the residents. Completed assessments were analysed for frequency and severity of risk behaviours; historic prevalence of risk behaviours; judgements on future risk; and strengths and vulnerabilities. The evaluation indicated a picture of a group of people who have a variety of historic risks and currently engage regularly in aggression and self-neglect, whilst experiencing limited insight, social exclusion, and limited coping abilities. Strengths and vulnerabilities linked to risk behaviours were also grouped into conceptually similar domains to aid intervention. Recommendations are made for using such data to enhance recovery.

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Introduction

Despite developments in promoting recovery in those with treatment resistant psychosis, there remains a significant proportion of these individuals who experience enduring needs that require specialised care, often in inpatient rehabilitation services (Edwards et al., 2023; Holloway et al., 1999; Trieman & Leff, 2002). For this group of people, difficulties with engagement with treatment and services in addition to persistent problematic and risk behaviours can be barriers to community reintegration (Meaden et al., 2014). This has led to the introduction of Long-term High Dependency Units, as a type of inpatient rehabilitation facility for those with enduring needs that require high levels of support (Royal College of Psychiatrists, 2019). However, there is currently a lack of treatment and management strategies specifically tailored to supporting the recovery of people from this group.

Multi-dimensional descriptive tools have proven useful in the characterisation of groups with disengagement issues (Meaden et al., 2012) as well as the identification of problematic behaviours in people with complex psychosis (Meaden et al., 2014). Structured professional judgement schemes facilitate this approach, and the Short-Term Assessment of Risks

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and Treatability (START; Webster et al., 2006) is one such tool. The START tool covers a broad range of risk types, with a focus on dynamic, and therefore potentially treatable, factors. The START also supports the consideration of both vulnerabilities that are critical to risk and strengths that serve as key areas for care planning and promoting recovery.

This study aims to identify dynamic risk factors of service users requiring Long-term High Dependency care.

Method

Participants

Data was derived from a Long-term High Dependency Unit service for men in the West Midlands, United Kingdom. The service provides 24-h nursed care as part of a multidisciplinary team approach. It also operates as part of a commissioner-led pathway providing care in collaboration with the local National Health Service Trust and its rehabilitation services.

Ethics

Ethical approval was granted by the University of Birmingham's ethics committee and the care provider's Quality Governance Board prior to collation and analysis of the START assessment data. All data was anonymised on-site and securely handled in accordance with relevant policies and regulations.

Procedure

This study took the form of a service evaluation of recently completed multidisciplinary START assessments, which formed part of each service user's care notes system. START assessments were routinely completed on a weekly basis at the service, annually for each service user. These were completed by multi-disciplinary teams comprising Nurses, Health Care Assistants, Occupational Therapists, and a Clinical Psychologist (who was trained in the use of the START and facilitated the assessments). As the facilitator, the Clinical Psychologist made sure consensus was reached across the multi-disciplinary team around the presence and absence of behaviours and item ratings.

Measures

The risk factors the START captures can be categorised into static factors (historical incidences that can provide insight into likelihood of engaging in risk behaviours, but are not amenable to intervention), stable-dynamic factors (factors that are generally persistent over time but are responsive to intervention), and acute-dynamic factors (factors that are changeable and vary) (Ward & Beech, 2004).

The START includes 11 risk behaviours ('Verbal Aggression', 'Physical Aggression against objects', 'Physical Aggression against others', 'Sexually Inappropriate', 'Self-harm', 'Suicide', 'Self-neglect', 'Unauthorised Leave', 'Substance Abuse', 'Victimisation', and 'Stalking'). These are rated on a four-point scale, except for 'Sexually Inappropriate', which is rated on a three-point scale. The severity criteria for each behaviour differs and can be found in Appendix A: START Severity Scales. The historic occurrence of these behaviours is also recorded as part of the assessment. 'Violence (verbal and physical aggression)', 'Self-harm', and 'Suicide' are further rated in terms of whether there is evidence of current 'Threats of Harm that are Real, Enactable, Acute and Targeted' (THREAT) with a dichotomous 'Yes/No' assessment. This serves to support the care team in prioritising areas for immediate attention (i.e., acute risk). The START assessment process then involves rating 20 dynamic factors in terms of whether they are minimally, partially, or definitely present (rated 0, 1, and 2 respectively). Further judgments are made concerning whether any of these 20 dynamic factors are critical for understanding the service users risk behaviours (critical vulnerabilities), or key in terms of focusing on their strengths (key strengths), and therefore particularly relevant in risk management (Viljoen et al., 2012).

Demographic and Clinical Data

Information was collated across age, ICD-10 psychiatric diagnosis, ethnicity, length of admission to the service, date of first contact with mental health services, length of continuing time in services, and category of detention under the Mental Health Act (a

piece of legislation covering assessment, treatments, and rights of people with mental health difficulties).

Data Analysis

Descriptive statistics were calculated to examine sample characteristics, which included the frequency of strength and vulnerability scores, key items, critical items, THREAT items, and historic behaviours.

Approach to Analysis

For vulnerability and strength frequency, only scores of 2 were considered a sign of definite presence of a vulnerability or strength. As scores of 1 represent 'partial/possible' presence they were not considered as being confirmed to be present, along with scores of 0.

Results

Demographics

A total of 26 service user data sets were included in the evaluation, all recorded as males, aged 27–81 years with an average age of 54.13 years. The average years since first admission to mental health services was 29.46 years, and the average amount of years since last being in the community, that is, not detained, was 12.88 years. The average amount of time admitted to the rehabilitation service at the time of the first START assessment was 13.19 months. Diagnoses included Paranoid Schizophrenia (84.62%), Schizo-Affective Disorder (11.54%), and Bi-Polar Disorder (3.84%). 73.08% were detained under section 3 of the Mental Health Act, 15.39% were detained under section 37, and 11.53% under section 37/41. The recorded ethnicities included Afro/Black-Caribbean (34.62%), White-British (30.76%), Indian (19.22%), African (3.85%), Bangladeshi (3.85%), Black British (3.85%), and White and Asian (3.85%).

Data Findings

The results are presented across the two areas of focus of this this study: the presence of risk behaviours and the dynamic risk factors assessed by the START.

Risk Behaviours

Table 1 shows the number of service users in the sample rated as engaging in risk behaviour at any

Table 1 The frequency count and percentage of cases displaying historical, current, and acute risks

Risk behaviours	Historic presence		Presence in the past 2–14 months		Acute risk (THREAT item)	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Verbal Aggression	25	96.15%	19	73.08	17	65.38%
Physical Aggression against objects			9	34.62		
Physical Aggression against other people			10	38.46		
Self-harm	10	38.46%	5	19.23	4	15.38%
Suicide	6	23.08%	2	7.69	1	3.85%
Unauthorised Leave	18	69.23%	5	19.23	–	–
Substance Abuse	21	80.77%	5	19.23	–	–
Self-neglect	22	84.62%	22	84.62	–	–
Victimisation	19	73.08%	11	42.31	–	–
Sexually Inappropriate	19	73.08%	9	34.62	–	–
Stalking	4	15.38%	2	7.69	–	–

Total count is out of 26 service users. For stable-dynamic behaviours, average timespan of incidents: 4 months. Data for acute risk behaviours was only recorded for violence (physical and verbal aggression), self-harm, and suicide (i.e., THREAT items: Threats of Harm that are Real, Enactable, Acute and Targeted)

time (static risk) and in the previous 2–14 months (mean = 3.54 months), as well as whether it is considered likely that they will engage in these behaviours in the future (THREAT). Historically prevalent behaviours within this sample included 'Violence (physical and verbal aggression)' (96% of service users had a history of engaging in violence), 'Substance Abuse' (81% of service users had a history of engaging in this behaviour), and 'Self-neglect' (85% of service users had a history of engaging in this behaviour) (Table 1). To a lesser extent, the behaviours 'Victimisation' (73%), 'Sexually Inappropriate' (73%), and 'Unauthorised Leave' (69%) were also common in the service users' histories.

Table 1 also shows risk behaviours that occurred frequently in the sample within the four-month mean review period. These included 'Verbal Aggression' (73% of service users were reported to have engaged in this outcome) and 'Self-neglect' (85% engaged in this outcome) (Table 1). Behaviours that had a low frequency included 'Self-harm', 'Suicide', 'Unauthorised Leave', 'Substance Abuse' and 'Stalking'. Violence (verbal and physical Aggression) was a relatively common THREAT item, with 65% of services users being assigned this item.

The average severity score was calculated for the observed incidents included in the START. These scores were relatively high for incidents of 'Verbal Aggression' (2.84 [SD = 1.0]) and 'Physical Aggression against objects' (2.33 [SD = 1.12]). The average severity score was relatively low for incidents of 'Substance Abuse' (1.20 [SD = 0.45]), 'Victimisation' (1.18 [SD = 0.40]), 'Sexually Inappropriate' (1.33 [SD = 0.50]) and 'Stalking' (1.00 [SD = 0.00]).

Risk Factors

For ease of presentation, the dynamic risk factors of the START are described here across five groupings containing START items that are conceptually and thematically linked in respects to rehabilitation and recovery. The category of 'Activities of daily living' groups START items that relate to daily functioning that underpin effective living within the community, such as negotiating social relationships, carrying out personal hygiene, and eating and drinking. The 'Self-management' factors relate to START items that reflect an individual's ability to manage themselves, their impulses, and their emotions. The 'Mental health' factors include items most closely linked to mental health needs and management, such as variations in emotional state, awareness of one's own stress triggers, attitudes towards services, and insight. 'External factors' groups START items that reflect factors outside of the individual, such as their living situation and their access to appropriate social and economic resources. The 'Engagement with treatments' grouping includes items related to engagement with interventions, such as medication management and abiding by hospital rules.

Table 2 shows the proportion of service users rated as demonstrating 'definite' strengths and vulnerabilities in each of the 20 dynamic factors. Also shown is the proportion rated as demonstrating key strengths and critical vulnerabilities across these factors, which are areas considered important by the clinical team in understanding the person's risk behaviours.

There were several areas of particular strength and vulnerability for this service user group (Table 2). For example, a high proportion of service users were rated as having critical vulnerabilities with START items that come under the 'Self-management' grouping (self-care, coping, impulse control, substance misuse). An area of strength was 'Activities of daily living' grouping, which showed that over 50% of the included service users were rated as having the two items recreation and social skills as key strengths.

Discussion

This study identified risk and treatment factors of service users with longstanding and treatment resistant psychosis in order to better support recovery. Available START data from residents of two Long-term High-Dependency Units were used to derive descriptions of these factors and their relevance to risk and care planning. This approach to collating this data has allowed for the development of the picture of a poorly understood group.

Demographics

The developing picture shows a group of men who largely have schizophrenia spectrum disorder diagnoses and a history of detained psychiatric care spanning over half their lives. Minoritised ethnic groups of the UK are overrepresented, comprising 69.24% of

Table 2 The frequency of strengths, vulnerabilities, key strengths, and critical vulnerabilities by grouping

Group	START items	Definite strength (%)	Key strength (%)	Definite vulnerability (%)	Critical vulnerability (%)
Activities of daily living	Recreational	26.92	**57.69***	30.77	7.69
	Social skills	30.77	**53.85***	**46.15***	42.31
	Relationships	19.23	26.92	**46.15***	**53.85***
	Occupational	12.00	15.38	40.00	0.00
Self-management factors	Self-care	26.92	34.62	42.31	**53.85***
	Coping	7.69	23.08	**48.00***	**53.85***
	Impulse control	38.46	15.38	34.62	**61.54***
	Substance use	**61.54***	7.69	7.69	**57.69***
	Plans	20.00	**50.00***	12.00	7.69
Mental health	Emotional state	38.46	19.23	26.92	38.46
	Insight	0.00	15.38	**61.54***	**61.54***
	Mental state	11.54	11.54	**50.00***	**73.08***
	Treatability	11.54	11.54	23.08	30.77
	Attitudes	34.62	30.77	26.92	34.62
External factors	Social support	0.00	34.62	**73.08***	19.23
	External triggers	**46.15***	7.69	30.77	**46.15***
	Material resources	**50.00***	11.54	3.85	15.38
Engagement with treatments	Rule adherence	30.77	3.85	19.23	15.38
	Medicine adherence	7.69	15.38	26.92	**65.38***
	Conduct	38.46	34.62	26.92	**46.15***

Total percentage is out of 26 service users. Asterisked and in bold percentages are those considered to be of relatively high frequency. Key strengths are important in understanding an individual's strengths. Critical vulnerabilities are important in understanding their risk behaviours

service users. This further substantiates the overrepresentation of people from these groups being diagnosed with severe, often psychosis related, mental health illness, particularly people racialised as Black (Halvorsrud et al., 2019). Afro-Caribbean people were the most overrepresented in this study's UK sample; however, similar levels of psychosis are not observed in Caribbean countries (Bhugra et al., 1996; Hickling & Rodgers-Johnson, 1995). The suggested influence of UK specific factors in such disparities (Griffiths et al., 2023; Jongsma et al., 2021; Termorshuizen et al., 2022) emphasises the need for more research on practices that acknowledge an individual's social identity and its impact on wellbeing, rehabilitation, and recovery (Kapadia et al., 2022; McDaid & Kousoulis, 2020; McInnis, 2020; Rotenberg, 2019). This includes culturally appropriate interventions that consider cultural values and beliefs in their design (Naeem et al., 2023; Liu et al., 2012), which as well as being effective may be more appealing and engaging for people from these communities (Maura & Weisman de Mamani, 2017; Nwokoroku et al., 2022). Staff training on routinely applying reflections on the potential impact of one's own culture(s) and racial identification on a service user's recovery is also of importance (McInnis, 2020).

Main Risk Behaviours

Past risk behaviour is often referred to as a "best predictor" of future behaviours (Meaden et al., 2022) and a range of risk behaviours were rated as present in the service users' histories. Violence (physical and verbal aggression) was the most common historic risk behaviour, being recorded in over 90% of service users.

Self-neglect was rated as the most frequently occurring behaviour during the recent review period, at 85%. Being vulnerable to exploitation was also frequently identified amongst the sample, being present

in 73% of the sample historically and 42% recently. Additionally, verbal aggression was observed recently in 73% of the service users, which was lower than the historic occurrence of aggression (96%).

Definite and Critical Vulnerabilities

The distinction between 'critical vulnerabilities' and 'definite vulnerabilities' in the START framework facilitates targeting of interventions. Critical vulnerabilities represent items regarded as important to understanding future risk and may represent good targets for early warning signs of risk interventions (Meaden et al., 2022). Vulnerabilities identified as definite but not critical vulnerabilities highlight the level of current vulnerability, irrespective of historical presentations. From Table 2 it can be seen that there were several items flagged as important critical vulnerabilities for this group, but they were rated as definite vulnerabilities in 50% or less of the sample, including substance use, impulse control, mental state, and medication adherence. This suggests that whilst these areas may not be highlighted for active treatment at present, they remain important for care planning and risk management plans, such as discharge to the community.

Risk Factors

In an effort to better describe areas for recovery focused interventions, risk factors were grouped across conceptually similar domains (Table 2).

Activities of Daily Living (Recreation, Occupation, Social Skills, Relationships)

Social skills and relationships were identified as definite vulnerabilities in 46% of service users. However, only relationships were rated as being a critical vulnerability. Although limited social skills are likely to impair the ability to make and sustain relationships, enabling more opportunities to develop and maintain appropriate relationships is likely to be particularly important in services where there are restrictions on when services users can leave the premises.

Recreation was considered a key strength in understanding a service user's risks for nearly 58% of the sample, yet recreation was only identified as a definite area of current strength for 27%. This highlights the importance of meaningful activity and recreation for service users in hospital settings as well as the difficulties with this area, which have been shown to be difficult to address (Killaspy et al., 2015). Interventions that aim to enhance social recovery and functioning, as discussed below for external factors, may also be important in this area.

Self-Management (Self-care, Coping, Impulse Control, Substance Use, Plans)

The majority of the areas in this domain were rated as being important in understanding a service user's risks (self-care, coping, impulse control, and substance use were all rated as critical items for 53–61% of service users). However, for most factors in this domain only 42% or less of service users showed recent vulnerability, with only coping being identified at a higher frequency than this at 48%. This suggests that while these self-management areas are considered important by the clinical team in managing risk, aside from ability to cope with problems or stress, many service users did not demonstrate definite and consistent vulnerability across these areas. Enhancing service users coping skills may therefore offer a significant area for future risk management interventions (for example, coping skills enhancement; Izquierdo et al., 2021).

Substance misuse is an important area to consider in risk management, as it can be understood to be a risk factor for other problematic behaviours. In this study, nearly 62% of service users showed definite strengths in this area, despite this being identified as a critical vulnerability for 58% of service users. However, the restricted nature of a secure rehabilitation hospital ensures limited access to substances, and so the critical vulnerability rating is arguably more relevant here, as this highlights any enduring vulnerabilities, such as problematic substance related beliefs, regardless of current dynamic protective factors, like substances not being easily acquired. Interventions such as Social Behaviour and Network Therapy (Copello et al., 2006), particularly those designed for inpatient contexts (Graham et al., 2016), can be helpful in targeting the maintaining factors of substance misuse risk.

Mental Health (Emotional State, Insight, Mental State, Treatability, Attitudes)

In the mental health domain, the factors insight and mental health were identified frequently as both definite vulnerabilities and critical vulnerabilities. Given the prevalence of enduring psychosis in this group, it follows that mental health was considered a critical vulnerability amongst the sample and that 50% continued to show definite vulnerabilities in this area, despite being in an inpatient treatment service for addressing these needs. Along with the high frequency of insight difficulties being observed (62% of service users), this emphasises the need to understand the intervention targets and suitability of treatment aims. Under insight, the START includes the need to identify and manage both early warning signs of relapse and personal risk factors. These specific items were not endorsed as strengths for any service users in this study. Improvements in these two factors are likely to be considered prerequisites for successful community placement into less restricted settings.

External Factors (Social Support, External Triggers, Material Resources)

The external factors domain contains factors that service users may have less immediate control over than the other factors. The most frequently observed recent vulnerability was social support (the lack of support from a social network), and it is noteworthy that social support was not identified as a critical vulnerability. Being a resident in a hospital may itself be a cause of social isolation from social networks, and access to naturally occurring social networks is known to be impaired when in hospital (Fox & Harrop, 2015). Hence, enhancing access to naturally occurring networks could play a role in addressing this area. This could involve finding practical ways to reconnect with supportive family or friends, such as support to use video calling, or supported trips into the community. For those with limited social networks, resources, and opportunities, it may be appropriate for staff to deepen their role in supporting the development of new networks, preferably those external to the hospital setting, in order to support social recovery and development. This could include guided peer support, volunteer schemes, supported engagement in social activities, and psychosocial skills training (Brooks et al., 2022; Fox & Harrop, 2015; Tee et al., 2020).

Another important factor in the mental health domain was external triggers as a critical vulnerability. However, 46% of service users were observed to have a recent definite strength in this area and 50% showed recent definite strengths in access to material resources. This suggests that the hospital admission may facilitate some access to external strengths, such as stable benefits, food, and housing—areas which may otherwise have a destabilising influence on the risk behaviour.

Engagement with Treatments (Rule Adherence, Medicine Adherence, Conduct)

Medication adherence was identified as a critical vulnerability for 65% of service users, although only 27% showed recent evidence of vulnerability in this area. Specific interventions that aim to enhance skills in the self-management of medication therefore appear to be important when an individual is an inpatient. Combining START assessments with early warning signs of risk plans to assist in monitoring changes in risk status could be helpful when considering movement into less secure settings or reintegration into the community.

Limitations and Further Study

This study was a focussed consideration of a relatively small number of men within a Long-term High Dependency Unit service in the UK. Although this provides a detailed understanding of their needs that may be transferable to similar services, it limits the generalisability of the findings. Various risk factors for problematic behaviours have been observed to vary in relevancy depending on gender (de Vogel et al., 2016; de Vogel & Lancel, 2016; Meaden & Hacker, 2010), and so an exploration of the needs of women and non-binary people receiving similar support is recommended to discern if any differences or similarities exist. The evidence base would also benefit from similar efforts in other services, due to the specific nature of the studied service, especially those outside of the UK.

Using the START, this study has identified and described some of the risks to the service user from themselves (such as self-harm) and others (such as

exploitation). It would also be helpful to consider the assessment of risks to the service user from the services they are receiving, that is, iatrogenic risks, such as type of intervention, errors, or negligence. This may be aided by the increasing recognition of the importance of monitoring risks from mental health services (Okkenhaug et al., 2023). Furthermore, due to the disproportionate presence of people from minoritised ethnic groups, considering this risk is of particular importance, as people from these groups repeatedly report worse experiences with mental health services and receive more coercive treatment than those from majoritised ethnic groups (Ajnakina et al., 2017; Barnett et al., 2019; Care Quality Commission, 2018).

Summary and Conclusions

This study illustrates the utility of the START for clinicians in identifying areas for care planning for those with complex psychosis in Long-term High-Dependency Units. This group's complex needs remain despite experiencing extensive periods of inpatient care, often over many years. Verbal aggression and self-neglect were observed to be frequently present, along with limited insight into mental health needs, social exclusion, and limited coping abilities. This highlights the potential of the START in supporting the development of a bespoke understanding of a person's needs, difficulties, and strengths, and integrating this with an understanding of their ability and inclination to manage these themselves. One route to integrating this information is through psychological formulation; however, this approach has remained unclear (Lewis & Doyle, 2009) and there has been little guidance about how best to implement the use of formulation in risk management plans for people with complex psychosis. A specific and theory-driven approach is proposed by Meaden et al. (2022), describing how assessment data derived from the START can be used to inform structured formulation approaches to understanding risk behaviour. Further work is needed to link such formulations to meaningful intervention targets, such as through care-planning and routine ongoing assessment. As the START is well-placed for facilitating repeat assessments, there is the opportunity to integrate its use into routine formulation and care planning processes to identify and develop more effective support so that service users can be better assisted through their recovery to a life that personally fulfils them.

Author Contribution AJS collected the data; analysed the data; and wrote the original draft of the paper as well as reviewed and edited it. AM and AF formulated the research question and design of the study, as well as reviewed and edited the paper.

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Declarations

Conflict of interest The authors have no relevant financial or non-financial interests to declare.

Ethical Approval Ethical approval was granted by the University of Birmingham's ethics committee and the rehabilitation hospital's Quality Governance Board prior to collation and analysis of the START assessment data.

Consent to Participate Informed consent was not required as this was a service evaluation using routinely collected data.

Consent to Publish Data will not be made available and is not open—as agreed as part of the ethical approvals (due to be being clinical and sensitive data).

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