



Research paper

"Back on the road": Exploring experiences of driving resumption in patients recovering from critical illness



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ABSTRACT

Background: Recovery after critical illness is complex, with physical, cognitive, and psychological sequelae. Driving a vehicle involves the intricate interaction of physical, cognitive, visuospatial, and psychosocial components. Any, or all, of these can be impacted by critical illness. Driving resumption and experiences surrounding this activity remain largely unknown from the evidence to date.

Objectives: To explore the experiences of returning to driving in patients recovering from critical illness and to identify barriers and enablers to driving resumption.

Methods: This was an exploratory qualitative study. Focus groups were conducted with patients recovering from critical illness enrolled in a 1-year prospective study of supported driving resumption. Focus groups were held face to face at a driving mobility centre in the UK or virtually via Microsoft Teams. Each focus group lasted around 1.5 h. Audio recordings were transcribed verbatim. Data analysis was guided by the principles of reflexive thematic analysis described by Braun and Clarke.

Findings: Eight individuals participated across two focus groups. Three themes were derived from the data: *complexities of recovery and returning to driving after critical illness*, *reclaiming life through driving*, and *influential external factors in driving behaviour and recovery*. Participants reflected on the adverse effects of critical illness on physical and cognitive ability, resulting in reduced confidence and readiness to drive. Driving resumption was commonly self-directed with limited guidance from healthcare professionals. Greater information and support were desired by survivors. Driving resumption was considered of great importance and was often viewed synonymously with independence and normality. External factors including job roles, public transport, and family perceptions influenced driving resumption and behaviour.

Conclusions: Findings from this study highlight the importance attributed to driving resumption and the challenges associated with this activity for individuals recovering from critical illness. The need for improved guidance and support to enable safe and timely return to driving was advocated.

Registration: This study was registered at Clinicaltrials.gov with the ID NCT04272684.

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1. Introduction

Recovery after critical illness is multifaceted and complex, with over half of patients discharged from critical care experiencing one or more physical, cognitive, or psychological impairment.^{1,2}

Collectively termed postintensive care syndrome, these impairments hinder everyday activities and adversely affect quality of life.^{3,4} Restoration of social, vocational, and family roles is deemed imperative by those recovering from critical illness;⁵ as such, successful driving resumption can be pivotal.

Driving entails the complex interplay of physical, cognitive, visuospatial, and psychosocial components.⁶ Any, or all, of these elements can be impacted by critical illness and impede driving resumption.⁷ Accessing one's local community, including regaining the ability to drive, is reported as a goal among critical care survivors.^{8–10} A recent systematic review highlighted how driving

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was seen as an indicator of independence and marker of identity, surfacing the issues around brake reaction times, driving suspension, cessation, and perceived safety issues.¹⁰ However, driving resumption appears to be limited in the early stages of critical illness recovery, with studies indicating less than 15% of adult critical care survivors resuming driving 1 month after hospital discharge and fewer than 70% at the 3-month time point.^{7,10–12} Self-determined fitness to drive and self-imposed restrictions are commonplace among survivors.¹³

Addressing the long-term consequences of critical illness is a priority for survivors, family caregivers, and the wider critical care community, with recovery enhancement central to the research agenda. Driving resumption and experiences surrounding this activity remain largely unexplored. A comprehensive understanding of the experience of driving resumption following critical illness may provide valuable insights for developing interventions and guidance to facilitate driving resumption for patients and healthcare professionals.

2. Objectives

The objectives of the study were to (i) explore the experiences of returning to driving in patients recovering from critical illness and (ii) identify barriers and enablers to driving resumption.

3. Methods

3.1. Methodology and study design

We used an exploratory qualitative research methodology.^{14,15} We selected focus groups to enable exploration of the collective perspectives, attitudes, and lived experiences of patients recovering from critical illness when returning to driving.

3.2. Participants

We invited 25 participants enrolled in a 1-year prospective study of supported driving resumption after critical illness (clinicaltrials.gov ID: NCT04272684) to join either a face-to-face or virtual focus group. Participants were offered £30 as recompense for their time participating in the study.

3.3. Data collection

Focus groups were held in-person at the Queen Elizabeth Foundation driving mobility centre, Carshalton, Surrey, UK, and virtually via Microsoft Teams. The Queen Elizabeth Foundation is a specialised mobility centre staffed with expert clinicians who provide a tailored, comprehensive assessment of driving ability. The comprehensive assessment entails physical review, battery of cognitive assessments, evaluation of physical and cognitive ability on a static assessment rig, and in-car assessment.

The focus group topic guide was informed by previous research⁷ and our prospective study (clinicaltrials.gov ID NCT04272684) and devised iteratively by the research team (JM, NP, CA, and KB). The guide was used flexibly to facilitate discussion around participants' experiences of returning to driving (available in supplementary material). Both focus groups lasted around 1.5 h.

The focus groups were moderated by experienced facilitators (NP and CA), with field notes taken by CA and KB, all of whom are academic researchers and intensive care unit (ICU) professionals with experience working with ICU survivors. Participants were already acquainted with research team member(s) (CA and KB).

Audio recordings were transcribed verbatim by a professional transcription service.

3.4. Ethical considerations

Ethical approval was granted by the West London Research Ethics Committee (REC Reference: 19/LO/1665, Integrated Research Application System number: 262986). Written informed consent was obtained from all participants.

3.5. Trustworthiness of data

Reflexive diaries were kept by members of the research team to aid data interpretation. Using verbatim quotes helped to ensure credibility and trustworthiness in the findings. Research decision-making was documented, and the research team actively engaged with the reflexivity process. Analysis was conducted by NP, CA, and KB. Team analytic meetings also supported transferability and credibility. Transcripts were not returned to participants for review as this is not in keeping with the ideology of reflexive thematic analysis¹⁶ and has not been shown to enhance research integrity.¹⁷

3.6. Data analysis

Data analysis was guided by the principles of reflexive thematic analysis.^{18–20} An inductive, data-driven approach was adopted. Phases of analysis were completed sequentially, but as a recursive process, movement between stages occurred to allow for full interpretation of the data. Two members of the research team (CA and KB) independently reviewed transcripts to become familiar with the data and then commenced coding. The initial theme generation and theme development was an iterative process with review against the dataset by both researchers (CA and KB). Theme refinement was undertaken with the wider team (CA, KB, and NP). Field notes documented by the researchers were included in the analysis. NVivo software (Version 14.23, Lumivero) was used to assist data analysis.

4. Findings

Eight of the 25 invited individuals participated in the focus groups. Five participants attended the face-to-face group, and three participants attended the virtual focus group. Median (interquartile range) time between discharge home and focus group attendance was 13 (8–21) months. Participant characteristics are shown in [Table 1](#).

Three themes were derived from the data: *complexities of recovery and returning to driving after critical illness*, *reclaiming life through driving*, and *influential external factors in driving behaviour and recovery*. Development of themes is shown in [Fig. 1](#).

4.1. Theme 1: Complexities of recovery and returning to driving after critical illness

Participants reflected on the multifaceted challenges and obstacles they faced during recovery and when attempting to return to driving. Participants discussed how their critical illness had altered their sense of self and identity and how they were perceived by others.

"My brain is not the same as it was before, I was in the ICU for three weeks, I didn't know who I was, where I was, I was in hospital for 13 months and I like to think I'm still the same person in the end, but absolutely different" (Participant 3, male, age range: 55–59 years).

Table 1
Participant characteristics.

N = 8	
Age, years	55 (51–68)
Sex, n, (%)	
Male	5 (63)
Female	3 (37)
ICU admission diagnosis, n (%)	
Medical	3 (37)
Surgical	5 (63)
ICU delirium, n (%)	
Yes	4 (50)
No	2 (25)
Unknown	2 (25)
ICU LOS, days	14 (12–23)
Hospital LOS, days	28 (21–101)
Time between discharge home and focus group, months	13 (8–21)
Employment status, n (%)	
Full-time	4 (50)
Part-time	1 (13)
Retired	3 (37)
Living status, n (%)	
Alone	1 (13)
With partner/spouse/family	7 (87)
Time to driving resumption, days	60 (40–89)

All data are median (IQR) unless otherwise specified.

ICU: intensive care unit, IQR: interquartile range, LOS: length of stay.

Physical impairments included reduced muscle strength, altered sensation, and impaired co-ordination. Concerns about reduced concentration, associated with or without fatigue, loss of spatial awareness, lack of attentiveness to hazards, and the impact of these on safety were raised by participants. These issues led to reduced confidence, impacting readiness to drive.

“The head was a little bit foggy. You’re very conscious of how fast you’re going, hazard awareness or maybe a lack of hazard awareness ... and it was very, in my mind it was very conscious of that, and a little bit concerned about maybe my response time not being up to scratch ... also, I was still suffering from quite a lot of fatigue ... I was very conscious that when you’re driving a vehicle, it’s like a loaded gun, it’s a weapon, and if you’re not in a fit state, things can go bad very quickly” (Participant 8, male, age range: 45–49 years).

Many participants felt they had to solo navigate their driving recovery without clear guidance or support. Healthcare professionals only gave advice when requested, and there was a lack of guidance. Participants reported accessing information from other sources including friends and family or online sites; however, this information and that provided by healthcare professionals lacked detail or was conflicting, leading to confusion and concerns about the legality of driving resumption. This hindered a return to driving for many.

“I was just using Google to try and find that information out because one said one thing, another said another thing ... there’s no clear (information) for the individual people really ... I was worried about it, whether or not I can do it, whether or not I’m allowed to do it, if I get stopped by the police, have I updated my insurance company? Have I done the right thing with the [Driver and Vehicle Licensing Agency] DVLA and everything like that? ... it’s just quite a grey area” (Participant 6, male, age range: 50–54 years).

A lack of health professional understanding about critical illness recovery outside of critical care was viewed as a barrier to driving resumption for some. Those participants with life-changing conditions expressed frustration and despair that decisions about driving resumption frequently lay with healthcare professionals who did not know them or understand their current abilities, e.g., General Practitioners (GPs). Processes linked to driving resumption, including contacting the DVLA, were reported to be arduous, opaque, and time-consuming, in some cases, lasting nearly a year.

“I was in hospital for so long, my GP didn’t know me and the GP is answering questions without even seeing me, not having any sense of any of it and you know what, they wrote that in the letter to the DVLA” (Participant 3, male, age range: 55–59 years).

A need for professional support, timely and clear advice, and explicit guidance was advocated by all participants.

“I think as soon as medically it looks to the experts that you’re going to be okay to contemplate physically driving and mentally driving, then talk about it ... Work through, if you want to do this, here’s what can happen ... here’s what your obligation is with the DVLA, it can all be written down” (Participant 3, male, age range: 55–59 years).

Many felt an information pack specific to different health conditions alongside a structured conversation about driving resumption by the clinical team who knew them best (which could be their primary team or the critical care team) was essential.

“[The team] can go, there’s this information pack, contact these numbers, you’ve got to phone up the insurance company, you’ve got to phone up the DVLA and let them know, come here to do an assessment before you start getting back on the road ...” (Participant 1, male, age range: 45–49).

Others felt a competency-based assessment, akin to the driving assessment completed in the feasibility study, would be useful to ensure safety and to provide reassurance to themselves,

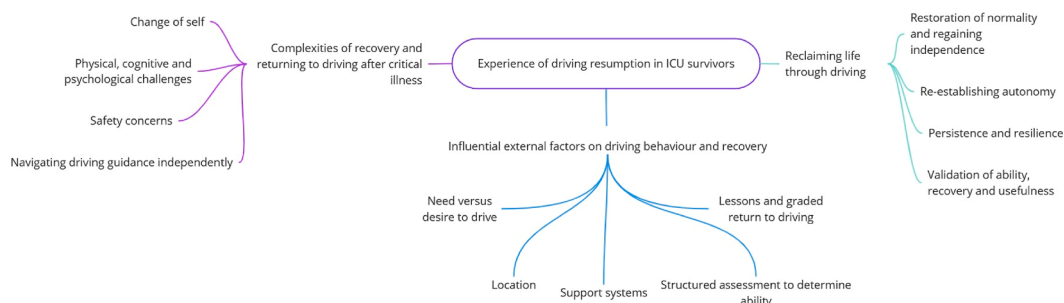


Fig. 1. Development of themes. ICU: intensive care unit.

their family, and to driving regulatory bodies (e.g., the DVLA in the UK).

"... we just need to have a framework to assess our levels of competency with those minimum standards, and we have to be able to test those, assess them in some way ... I think we need to be looking at things like hazard awareness, hazard perception, levels of fatigue, stamina, things like that" (Participant 8, male, age range: 40–44 years). (Agreement by Participant 7, male, age range: 65–69 years).

Greater awareness of services that support driving recovery was raised by participants. These were viewed to be integral for some participants, especially those for whom driving resumption was challenging.

"... even a flyer from you guys [healthcare team and driving assessment centre] to say, this is what we are, this is what we do you know, not it's going cost you however much to do it but just, just to let you know that they're out there and that you know, you haven't got to drive a manual car again, there are ways of adapting cars.. ." (Participant 4, female, age range: 50–54 years).

4.2. Theme 2: Reclaiming life through driving

Driving was seen as vital for many participants and was often viewed synonymously with independence and normalcy. Participants discussed how driving allowed restoration of everyday activities and resumption of family roles which were lost when critically unwell and in the early recovery phase. For some, driving formed part of their identity, particularly for one participant with life-changing impairments following critical illness.

"It just gives you independence. I mean the fact that you know your car is sitting outside, even if you don't use it every day, the fact that you know it's there because if it's ever you know, in the garage, out of action or anything, I feel absolutely lost without it" (Participant 5, female, age range: 75–79 years).

"My one was independence, having a son who wants to play football, who wants to go to the thing. It's just getting on with your life and finding ways round to do that" (Participant 1, male, age range: 45–49 years).

The need to re-establish autonomy after feelings of powerlessness following critical illness was also key to resuming driving. Many participants had experienced prolonged and protracted recovery, and for some, recovery was still on-going.

"... I had been so dependent in hospital for so many months, 13 months total, I just needed to do things and to prove that I can do things that were independent. So driving was that" (Participant 3, male, age range: 55–59 years).

"That was the biggest thing for me just to get on and do it and go past those hurdles for myself really and not relying on other people to do things for me ... I'm sat there watching people do all that for me and I thought I can't, I need to take some control" (Participant 6, male, age range: 50–54 years).

The need to regain control was also evident in some participants' description of being passengers in other people's vehicles. Not being in control, when previously they had done the majority of driving, was viewed as stressful and frustrating.

"My motivation was, there was only so much of my (family member's) driving I can take. I was like, I value my life, I'll take it into my own hands" (Participant 1, male, age range: 45–49 years).

"It's more stressful when you're not in control isn't it?" (Participant 4, female, age range: 50–54 years).

Driving resumption was recognised as a symbol of progress and recovery to all participants and a way to demonstrate functional ability to others, including friends and family. Driving was also viewed by some as a link back to their former self despite the life-changing events of critical illness.

"No one can tell you're disabled, there's no sign, I just get in the car, I look the same as everybody else" (Participant 3, male, age range: 55–59 years).

Persistence and resilience were discussed as important intrinsic features of overall recovery and driving resumption by many participants.

"I was determined at some point I would get back behind the wheel" (Participant 4, female, age range: 50–54 years).

4.3. Theme 3: Influential external factors on driving behaviour and recovery

Alongside intrinsic motivations to resume driving, participants also discussed external influences to driving recovery, such as job role. Others outlined difficulties in accessing, or a lack of, public transport, especially with a new disability. Conversely, for others, driving was more for pleasure or convenience.

"Where I live, it's really, really, important to drive because there's no bus service there at all, it's just country lanes and so I was quite anxious that I could drive really" (Participant 5, female, age range: 75–79 years).

"I do need to go back to work, how the hell am I going to get to work because by public transport, it's about three or four buses and tubes and trains,... it's not an easy journey. So I said, actually this is good, if someone is going to say to me, you can drive, that's you know, that's going to be really helpful in my day-to-day living" (Participant 4, female, age range: 50–54 years).

Driving location was a consideration for one participant. Large cities and dense urban areas with busier roads and unique, unfamiliar road systems presented more of a challenge and feelings of foreboding.

"... it's a different type of driving in London. It's a very aggressive driving structure in the way people are, and that was a little bit more of a concern because of the hazard perception, the awareness, the way other people drive, and everything else" (Participant 8, male, age range: 45–49 years).

Participants discussed how family had influenced their return to driving. Driving resumption was met with trepidation from family members for some. Self-determined driving ability and confidence appeared to be a deciding factor on whether to heed family concerns.

"My wife and my parents were like, be careful just go around the corner, just do a short trip and I'm like no. So I just got in the car, by myself and went for a drive, got home, didn't crash, didn't have any

issues, turned round and went, I'm going to be fine" (Participant 1, male, age range: 45–49 years). (Agreement was shown by Participant 4, female, age range: 50–54 years.)

For others, family members provided emotional and psychological support in the form of accompanied drives and practical assistance with adaptations.

"I can do the journey to, and then she [wife] can do the journey back which we done a couple of times because it's the tiredness. It's having that security sort of blanket ... are you okay, do you want me to take over? ... if I was by myself, it probably would have taken a lot longer because I might have just nipped up the top of the road and round and back again, rather than going to the shops, say 4–5 miles away because that's quite a lot So yeah, family was quite important from that point of view" (Participant 6, male, age range: 50–54 years).

Facilitators of driving resumption included support from professional driving support services, a comprehensive assessment of driving ability, refresher lessons, and a self-determined graded return to driving. Linking these facilitators was their effect on enhancing driver confidence which enabled some participants to exceed their preconceived ideas of their own ability, improving self-efficacy and resulting in more timely return to driving.

"Your driving assessment course gave me a shot in the arm for confidence" (Participant 7, male, age range: 65–69 years).

Although the comprehensive driving assessment was viewed positively, two participants realised it was undertaken too early in their recovery, even though they had felt ready.

"I think I realised coming (for the assessment); it was far too early, I just didn't have the mental capacity to cope with the roads and we were out for quite a long time, and I was very tired" (Participant 2, female, age range: 75–79 years).

5. Discussion

This qualitative study investigating experiences of driving resumption in patients discharged from critical care identified three themes: (i) *complexities of recovery and returning to driving after critical illness*; (ii) *reclaiming life through driving*; and (iii) *influential external factors* (job role, public transport accessibility, and family perceptions) *in driving behaviour and recovery*.

A key feature in our findings was the importance of driving for patients recovering from critical illness. Driving was viewed as crucial to independence and restoration of normality, enabling resumption of everyday roles and activities, even for those participants who were severely physically disabled after critical illness. Similar issues around role resumption and striving for independence have been reported in other studies of critical care recovery.^{5,8,21} Our study highlights the key role driving plays for some in regaining this independence.

Outside of critical illness recovery, driving can enable social engagement for older adults,^{22,23} improving both physical and psychological health and overall quality of life.²⁴ As an important social determinant of health,²⁵ driving can be an enabler of self-management.²⁶ Moreover, individuals recovering from critical illness frequently have on-going health and social needs, such as caring responsibilities.

In our study, confidence often underpinned self-determined readiness to drive and played a significant role in driving

resumption. Critical illness sequelae have been shown to adversely affect confidence.^{27,28} Confidence was a key contributing factor in driving resumption in another study.⁷ Our participants highlighted that enhancing driving-related confidence with appropriate strategies such as refresher lessons and support from professional driving organisations was beneficial for driving resumption. However, it is important to note no support strategies have been formalised in guidance as of yet.

Our participants regularly navigated driving resumption independently with little or no guidance from healthcare professionals. This led to confusion and anxiety about returning to driving safely and to an acceptable standard for regulatory bodies and insurance providers. Our findings are consistent with another study where patient-reported safety concerns were commonplace.¹³ Currently, there is no driving-related guidance or objective data specific to critical illness on which to base recommendations. Furthermore, to our knowledge, driving-related discussions are not a standard of care in primary care settings in the UK, Europe, or the United States.^{29–31} This may account for why information from healthcare professionals was lacking. However, as a result, our participants were left feeling isolated and unsupported. Lack of information is also likely to place an additional burden on family members physically and/or psychologically, which formal guidance could help negate.

In our study, survivors desired more detailed information, clear guidance, and support from healthcare professionals and teams who understood their clinical condition and the nature of complex critical illness recovery. It was felt GPs were unable to support driving resumption. These conversations may be best placed in critical illness recovery clinics where clinicians are well versed with the intricacies of recovery. However, as recovery clinics are not universally available nationally or internationally,^{32,33} enhanced sharing of information and education with primary care colleagues is warranted.

5.1. Strength and limitations

The focus group methodology employed in this study allowed for in-depth and detailed discussion of driving resumption, thus yielding greater insight into this topic than individual interviews would have allowed.³⁴ This methodological approach also helped to elevate face validity as ideas and discussion points could be confirmed, bolstered, or challenged by other participants.^{35,36} As results comprise patient, caregiver, and healthcare considerations, this conveys a comprehensive data collection, which is a strength of the study. Other strengths of this study include the rigorous approach to data collection and data analysis and face-to-face and online focus groups to allow inclusion of participants from different geographical locations and those without access to technology.

A limitation of the study is the small participant numbers, particularly in the second focus group, which did not meet the recommended numbers suggested within the literature.³⁷ We recognise this may have impacted our findings, for instance, by placing greater emphasis on opinions and ideas which may have been challenged, diffused, or opposed in a larger group. We also recognise this was a self-selecting sample, who may have attributed more significance to driving than other critical illness survivors. Our topic guide was not piloted before use. We recognise patient and public review may have resulted in improved clarity and effectiveness of the guide. We invited only the participants of a 1-year prospective study of supported driving, which may have introduced bias into our findings, given this indicates an interest in driving resumption. Furthermore, all the participants had resumed driving at the time of the focus group.

5.2. Implications for future practice

This is the first published qualitative study to directly explore driving resumption in patients recovering from critical illness (rather than using clinic dialogue as a data source as per Danesh et al. [2023]¹³) and as such provides vital insight into survivors' experience of returning to this activity. Our study highlights the need for more robust, evidence-based guidance, based on studies focused on not only physical but also cognitive/emotional readiness to drive. This will contribute towards enabling safe and timely return to driving after critical illness. Guidance will support conversations about driving resumption between clinical teams and patients in forums such as critical care recovery clinics and primary care settings. This will negate the need for patients to self-assess readiness or competency to drive, thereby reducing anxiety and promoting patient and public safety. Guidance should also encompass appropriate support strategies which may be available to enhance driving resumption, including refresher lessons with qualified instructors or driving assessments at approved driving centres.

6. Conclusion

This exploratory qualitative study highlighted the importance of driving resumption after critical illness. Driving after critical illness was viewed synonymously with independence and symbolised progress and recovery. Employment status, public transport, and family were prominent factors influencing driving resumption decisions. Navigating driving resumption was commonly a self-directed and challenging process. Critical illness survivors require guidance and support from healthcare professionals to effectively resume driving, which may help avoid confusion and anxiety about safe driving resumption.

CRediT authorship contribution statement

Joel Meyer: Conceptualisation, Funding acquisition, Supervision, Validation, Writing – review & editing.

Chloe Apps: Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Validation, Visualisation, Writing – original draft.

Kate Brooks: Data curation, Formal analysis, Investigation, Methodology, Writing – review & editing.

Natalie Pattison: Data curation, Formal analysis, Investigation, Methodology, Supervision, Validation, Writing – review & editing.

Louise Rose: Supervision, Writing – review & editing.

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Data availability statement

The data that support the findings of this study are available from the corresponding author (CA) upon reasonable request.

Declaration of competing interests

The authors declare no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

Supplementary Data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.aucc.2025.101442>.

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