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Transport disruptions as opportunities for behaviour change: A qualitative evaluation of UK policy and practice

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ABSTRACT

Ambitious national targets for reducing transport emissions require effective policies that disturb entrenched unsustainable travel behaviours, in particular car use. One approach policymakers can adopt is to leverage transport environment disruptions as opportunities to destabilise habits and facilitate shifts in travel behaviour. A framework consisting of four key dimensions of disruptions (plannedness, scale, frequency, and duration) is presented. The current study investigates whether UK transport policymakers and practitioners currently recognise opportunities in transport environment disruptions across these dimensions, and the factors facilitating or preventing this approach. Through qualitative analysis of in-depth interviews with 23 transport practitioners from various UK transport organisations and key strategic documents, the findings reveal that while practitioners acknowledge the potential of disruptions in the transport environment to foster behavioural shifts to some extent, general approaches are limited in their conceptualisations of disruptions. Recommendations emphasise the need for comprehensive strategies that leverage disruptions driven by bold political leadership to overcome car dependency and achieve sustainable transport goals.

1. Introduction

Despite continued growth in demand, the global transport sector needs to reduce emissions by around a quarter by 2030 to reach net zero (IEA, 2023). In comparison to other sectors, however, transport has been of the slowest to decarbonise (European Commission, n.d). In the UK, current transport policies are likely to meet only 38 % of emissions reductions needed by the Sixth Carbon Budget period (Climate Change Committee, 2023). Given that technological advancements (e.g., electric vehicles, alternative fuels) may facilitate greater travel demand and continued reliance on personal vehicles, the belief that they offer the solution to the transport sector's environmental problems is evidently misguided. Instead, there has been growing recognition of the need for a more holistic policy approach which fosters radical behaviour changes, specifically targeting the reduction of dependence on high-emitting personal vehicles (Creutzig et al., 2018; Geels, 2018c; Whittle et al., 2019). With the UK Government having set an overarching goal of making public transport, cycling, and walking the natural first choices for all who can take them and for half of journeys in UK towns and cities to be made by walking or cycling by 2030 (UK Government, 2021), ambitious measures that disrupt stubborn car dependence are becoming increasingly necessary.

Potential opportunities for more effective behaviour change approaches are emerging from research on disruptions (e.g., Marsden, 2024) or 'moments of change', where a significant change to the contexts underlying behaviour weakens associated habits (Verplanken et al., 2008, 2018). For travel behaviour, this may occur following many different transport environment disruptions, varying in plannedness, scale, frequency, and duration (Hawley et al., 2020; Marsden, 2024). This paper posits that a more impactful approach to sustainable transport policy lies in recognising and leveraging the opportunities presented by these aspects of disruptions. Rather than viewing disruptions solely as negative events, policymakers can embrace them as catalysts for change, strategically managing them to promote sustainable travel alternatives. While previous research (e.g., Dawson & Marsden, 2019; Hawley et al., 2020, 2020; Kent et al., 2017; Marsden, 2024; Marsden et al., 2014, 2020; Marsden & Docherty, 2013; Schwanen et al., 2012) has highlighted the potential benefits of adopting a lens of disruption in

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transport policy, however, the extent to which this approach is considered to be useful in practice is not widely known. The present research thus considers the extent to which the different dimensions of transport disruptions and their opportunities for behaviour change are featured in UK transport policy and practice, alongside the contributing factors to their (lack of) inclusion. The following sections detail the importance of adopting a lens of disruption in sustainable travel policymaking and how disruptions are approached in the UK policy context.

1.1. Disruption as a lever for travel behaviour change

In order to achieve the level of behaviour changes necessary within transport, policies not only need to be implementable (i.e., economically feasible and publicly acceptable) but also sufficiently disrupt behaviour (Thaller et al., 2021). In a study (Thaller et al., 2021) which aimed to design a more impactful transport policy package in the Austrian context, a combination of a literature review, expert interviews and a stakeholder workshop revealed that while 'carrot' or 'pull' measures (e.g., making active and public transport more attractive) are important for garnering public support, 'disruptive' policies, defined as policies that 'drastically decrease transport-related emissions by promoting a fundamental shift in the current system' (p.2) are essential. One reason disruptiveness is so important for behaviour change is because it involves disturbing the social contexts which shape individual travel habits (Marsden, 2024; Marsden et al., 2020). The process of *habit discontinuity* (Verplanken et al., 2008) may explain why this is so effective. Because habits rely on stable cues in the environment to trigger habitual behaviour (Aarts & Dijksterhuis, 2000; Gardner et al., 2016; Orbell & Verplanken, 2015; Verplanken, 2018; Verplanken et al., 1997), any contextual changes (or 'moments of change'; Nash et al., 2020; Thompson et al., 2011; Whitmarsh et al., 2024) offer windows of opportunity for alternative behaviours to be appraised (Verplanken et al., 2008). The social practices perspective asserts that travel disruptions occur when the *expectations* of normal travel are disturbed, leading to a change in social practices reflecting those expectations (Guiver, 2012; Marsden, 2024). In particular, a significant disruption or event may provoke a reflection of current practices and potential other ways of travelling (Kent et al., 2017).

While disrupting mobility systems through technological developments has been increasingly proposed over the last few decades (e.g., Clewlow & Mishra, 2017; Geels, 2018a; Sprei, 2018), research has been slower to consider how broader conceptualisations of 'disruptions' may affect transport policy and behaviour. Though disruptions tend to be framed as a negative phenomenon, research from the last few years has begun to acknowledge that unforeseen societal events (e.g., economic shocks, natural disasters), though they often have unfortunate consequences, may be leveraged to create wide benefits (Hawley et al., 2020; Thompson et al., 2011). Following from resilience research (e.g., Birkmann et al., 2010; Brundiers & Eakin, 2018; Novalia & Malekpour, 2020; Olsson et al., 2014), such disruptions are now commonly considered as natural experiments to test new policy approaches that challenge status quo regimes (Brundiers, 2018; Geels, 2018a, 2018b; Hawley et al., 2020). Indeed, the COVID-19 pandemic demonstrated not only that substantial shifts in behaviour are possible following large-scale societal disruptions (e.g., Abdullah et al., 2020; Kraus & Koch, 2021; Marra et al., 2022), but that planned transport environment innovations that favour active modes of travel (e.g., involving rapid pedestrianisation and roadspace reallocation) can be delivered alongside such events to promote (temporary) shifts in behaviour, inform future permanent changes, and garner widespread support for alternative modes of travelling (Gore et al., 2021; Hawley et al., 2020; Marsden & Docherty, 2021; Parkes et al., 2024).

Aside from large-scale disruptive events, newer streams of research have begun to shed light on the ways in which transport disruptions of different scales, including those in the built environment, can act as levers for change (Ferreira et al., 2014; Marsden et al., 2020; Marsden & Docherty, 2013; Parkes et al., 2016; Shires et al., 2016). Indeed, many changes to the transport environment, from structural and transport network disruptions (e.g., road closures) to disruptive travel management policies (e.g., roadspace reallocation) involve altering the choice contexts of behaviour and thus destabilising pre-existing habits or expectations associated with these contexts, offering opportunities for policymakers to deliver more effective behaviour change approaches. For example, measures including information provision (e.g., benefits of active travelling, local public transport routes), financial incentives (free travel passes), and training (e.g., cycle skills training) could be tailored to residents of areas experiencing road changes which (temporarily) limit the capacity to drive. Conceptualising transport environment disruptions which remove capacity for car use as 'moments of change' thus presents policymakers with opportunities to broaden the scope of behaviour change that can be achieved in practice (Marsden et al., 2020; Marsden & Docherty, 2013).

1.2. The UK transport policy landscape

The current UK transport policy landscape presents several challenges for promoting sustainable travel behaviour. Decision-making authority is fragmented across national, devolved, and local levels, each with varying objectives and levels of commitment to sustainability (Marsden & Docherty, 2019; Marsden & Rye, 2010). Funding for local transport schemes often operates on short-term cycles with competitive bidding processes that prioritise projects demonstrating clear links to economic growth (e.g., as in the Local Sustainable Transport Fund [LSTF]; Bache et al., 2015), rather than necessarily supporting the long-term systemic changes required. While many authorities display ambitious approaches to sustainable transport, these are often constrained by inadequate funding; Edinburgh Council, for example, worked on numerous partnerships to promote cycling in the 2010 s, but were unable to mainstream interventions (Bache et al., 2015). Moreover, the implementation of sustainable transport policy likely lies in the hands of politicians, who tend to shy away from policies that are perceived to inconvenience motorists (Paddeu et al., 2024). Indeed, in October 2023 the UK Prime Minister announced the 'plan for drivers' (UK Government, 2023), which attacked policies aiming to reduce the negative environmental impacts of car use (e.g., 15-minute cities, traffic filters, and reduced speed limits) and marked a significant step backwards for sustainable transport (Marsden & Schwanen, 2024).

These contextual factors reinforce the dominance of 'voluntary travel behaviour change' (VTBC) strategies (sometimes referred to as 'soft' measures that are 'downstream' of behaviour; Verplanken & Wood, 2006), including information provision, incentives, and personalised travel plans (Meloni et al., 2013; Stopher et al., 2009; Williams, 2018; Williams et al., 2019). These 'soft' policies are politically safer and cheaper to implement, aligning with a preference for non-coercive interventions. Though VTBC approaches have been commended for representing a 'step change' towards policies that better target the psychological mechanisms of behaviour change (Bamberg et al., 2011; Cairns et al., 2004, 2008; Möser & Bamberg, 2008; Semenescu et al., 2020; Williams et al., 2019), research suggests that they may not be particularly effective *in isolation*. For example, it has been argued that a large trial of VTBC schemes by the UK Government between 2011–2015 (Department for Transport, 2015) received varied results because 'whilst they created the opportunity for change, they did not provide a means of forcing this change to happen' (Williams, 2018p. 120). As such, these embedded VTBC approaches may be more effective if a lens of disruption were adopted, resulting in soft measures being delivered *alongside* various disruptions where individuals may be more amenable to change. While some studies (e.g., Bamberg, 2006, 2007) have found increased success in delivering marketing campaigns to individuals experiencing disruptions to life circumstances (e.g., residential relocation) – a strategy which has since become more widely adopted in practice through the use of residential travel packs or plans (e.g., Aberdeenshire Council., n.

d.; Department for Transport, n.d; South Gloucestershire Council, n.d.) – strategies which explicitly leverage a broader range of transport disruptions to promote sustainable travel appears to be uncommon.

Achieving the level of societal change needed in the transport sector will require radical, holistic strategies which diverge from incremental measures and instead deeply disrupt reliance on cars, despite initial public resistance (Geels, 2012, 2018; Marsden et al., 2014, 2020). Within this shift, a disruption lens could help policymakers identify clearer opportunities to pilot and test sustainable transport interventions and communicate the benefits of sustainable travel to foster long-term behaviour changes. The complex and often contradictory policy landscape, however, highlights the need for a cohesive framework that explicitly views disruptions as potential levers for change.

1.3. A framework for leveraging disruptions in sustainable transport policy

Several key dimensions can be used to classify disruptions to better understand the multifaceted nature of these events and their usefulness for policymaking. In particular, transport environment disruptions can vary in the extent to which they are planned as well as their scale, frequency, and duration (Hawley et al., 2020; Marsden, 2024). These dimensions form a potentially useful framework for policymakers to identify opportune moments for behavioural intervention, tailor policies to specific contexts, and promote long-term behaviour change. The following sections will describe each dimension and how they could be leveraged in UK transport policy.

1.3.1. Plannedness

Disruptions in the built transport environment can occur either as a result of less intentional disruptions to road networks (e.g., bridge collapses) or from purposeful changes (e.g., planned roadworks) and travel demand measures (e.g., bus priority or cycle lanes) (Fujii & Gärling, 2003, 2005; Marsden et al., 2016; Shires et al., 2016; Zhu et al., 2017; Zhu & Levinson, 2008, 2011). The types of events that are usually most considered to be 'disruptions' tend to include unexpected changes to the transport network (e.g., due to accidents or weather events; Marsden, 2024). Following road closures caused by bridge collapses, travellers typically adopt a range of alternative travel practices, including rerouting and retiming journeys, reducing travelling altogether, or switching to alternative travel modes (Zhu & Levinson, 2008; Zhu et al., 2011). Larger unplanned disruptions, like the 2010 eruption of the Eyjafjallajökull volcano in Iceland which closed European airspace, or the COVID-19 pandemic which placed restrictions on international travel and reduced the need for localised travel, have similarly been responsible for interrupting regular travel habits and routines (Abdullah et al., 2020; Borkowski et al., 2021; Budd et al., 2010). While the impacts on travel choices following these events can be short-lived (e.g., as in the case of the Eyjafjallajökull eruption), there is also potential for significant transition, as was shown during the COVID-19 pandemic where many behaviour changes sustained over time (Jacobsen et al., 2023; Marra et al., 2022; Marsden & Docherty, 2021). However, in practice, unplanned disruptions and their impacts tend to be perceived negatively, with the goal of authorities often being to return transport infrastructure to its incumbent state (Dawson & Marsden, 2019; Marsden, 2024; Zhu & Levinson, 2008, 2011). In addition, the ability to quickly deliver travel measures promoting alternative modes may be difficult given the prioritisation of emergency response or damage minimisation, as well as the fact that processes required to implement such travel measures are often time-consuming.

Disruptions to road networks that may result from more purposeful planning (e.g., due to routine works) are also often managed carefully to minimise impacts on existing travel, with a view to 'return to normal' (Zhu & Levinson, 2008, 2011). Nonetheless, these types of road disruptions have also been found to result in changes in travel choices (Fujii et al., 2001; Fujii & Gärling, 2005; Zhu et al., 2017, 2017; Zhu & Levinson, 2008, 2011). For example, an 8-month long freeway closure in Osaka, Japan served as a catalyst for uptake in public transit use among frequent drivers (Fujii et al., 2001), with findings showing an enduring effect on increased usage one year later (Fujii & Gärling, 2003). Because a road closure may lead to greater consideration of alternatives (Fujii & Gärling, 2003), however, these disruptions might also unexpectedly reveal the inadequacy of public transport, prompting calls for improvements. Policymakers need to be adaptable and prepared to capitalise on such moments to advocate for sustainable transport solutions.

At the other end of the plannedness spectrum lies purposeful travel demand measures (e.g., low-traffic neighbourhoods [LTNs], roadspace reallocation) which are driven by policy intentions to alter travel behaviour. These physical measures all share a quality of disruptiveness (i.e., disrupting incumbent transport contexts) which has proven to be effective in reshaping travel behaviours (Aldred, 2019; Aldred et al., 2024; Ewing & Cervero, 2010; Ogilvie et al., 2007; Ogilvie et al., 2012, 2016). For example, transport environment changes implemented as part of London's 'mini-Hollands programme', which aimed to increase cycling across several London boroughs, were found to significantly increase walking and cycling (Aldred et al., 2024). This was especially the case in 'high-dose' areas where built environment changes had been most dramatic (i.e., where LTNs had been implemented), where there was also consistent evidence of reduced use and ownership of cars.

1.3.2. Scale

Transport disruptions also vary in scale, from localised, single-street disruptions which impact a small handful of travellers to city- or nationwide disruptions with significant social impacts. Localised disruptions, such as a road closure on a single street, may only impact a small number of people, but could have great impact; for example, a LTN which prevents car use on a single road or neighbourhood may be particularly effective at reducing car use for the residents of that area (Aldred, 2019; Aldred et al., 2024). Although most small-scale disruptions may struggle to create enough pressure for widespread policy change, policymakers can utilise these events to pilot interventions or gather data on local travel adaptations. Transport behaviour has also been shown to be significantly altered during various city-wide disruptions, like the 2012 London Olympics (Parkes et al., 2016), where, although behaviour largely recovered following the reopening of roads, it could be argued that opportunities to foster modal shift (instead of temporarily reducing or retiming travel) were missed (Parkes et al., 2016). Indeed, following large-scale disruptions it is not uncommon for rebuild processes to take place, resulting in a restoration of the status quo (Hawley et al., 2020; Wiek et al., 2015), highlighting the importance of identifying the opportunities in wider transport network disruptions and delivering quick, impactful measures that embed behaviour changes.

The scale of a disruption can also extend beyond its immediate geographical reach. For example, while the disruption from a localised event like a train strike may end within several days, the impacts (e.g., interrupting supply chains) can be significant; conversely, while rebuilding following a bridge collapse may take months or years, the impacts might be felt on a much smaller scale (Marsden, 2024; Zhu & Levinson, 2008). The COVID-19 pandemic provides another useful example; while the event itself did not originate within the transport network, the cascading impacts resulted in widespread disruption and changes to travel, including, in many cases, temporary pedestrianisation and roadspace reallocation in cities (Parkes et al., 2024). Additionally, the scale of a disruption can be perceived differently by individuals across society, with varying subjective thresholds for what constitutes a disruption. For example, prior travel experiences and habits may contribute to how a disruption is perceived; in Fujii et al.'s (2001) study of the Osaka freeway closure, drivers who frequently commuted by car prior to the closure were less likely to switch to public transport, suggesting that these drivers may have had a higher threshold for what they considered a disruptive event, as they were more willing to tolerate the inconvenience of increased travel times.

1.3.3. Frequency and duration

While disruptions can be frequent (e.g., traffic congestion), infrequent (e.g., bridge collapses), short-term (e.g., temporary road closure) or long-term (e.g., major infrastructure project that permanently reshapes the transport network), these varying types of events can be utilised by policymakers as opportunities for behaviour change. Frequent, short-term events, like recurring traffic congestion, may result in regular behavioural adaptations (e.g., retiming journeys) and can become normalised once travellers accept that these disruptions are a part of travelling a certain way (Marsden, 2024; Zhu & Levinson, 2008). Less frequent events (e.g., an annual train strike, bridge collapse, or one-off road closure for maintenance), however, may have more potential to truly disrupt and alter travel behaviour, particularly if accompanied by information or incentives (e.g., Fujii & Gärling, 2003). The potential window of opportunity to deliver policy interventions during these less frequent events, however, depends on their duration; the longer-term a disruption, the greater the opportunity to promote and embed alternative behaviours (Fujii et al., 2001; Fujii & Gärling, 2003; Marsden, 2024; Shires et al., 2016). Additionally, however, the impacts that disruptions of varying durations have on behaviour may also rely on people's expectations of post-disruption travel and thus the level of behaviour change they are willing to commit to (Hawley et al., 2020; Thompson et al., 2011), as well as the extent to which the disruptive event activates their pro-environmental values (known as the self-activation hypothesis; Thomas et al., 2016; Verplanken et al., 2008). Thus, policymakers should consider ways to promote long-term commitments to behaviour change, especially among the more environmentally minded.

1.4. The current research

While the opportunities presented by disruptions are being increasingly recognised in research (Dawson & Marsden, 2019; Hawley et al., 2020, 2020; Kent et al., 2017; Marsden, 2024; Marsden et al., 2014, 2020; Marsden & Docherty, 2013; Schwanen et al., 2012), the extent to which transport practitioners in the UK similarly recognise them and adopt this approach in practice is currently unclear. Building on literature on disruptions (Marsden, 2024; Marsden et al., 2020; Marsden & Docherty, 2013) and habit discontinuities (Thompson et al., 2011; Verplanken et al., 2018; Verplanken & Whitmarsh, 2021), the current research thus aims to establish whether there is a recognition in UK policy and practice of the potential opportunities presented by different types of transport environment disruptions. In particular, this paper aims to investigate the perspectives of transport practitioners (i.e., those responsible for the delivery of sustainable transport policy in the UK) relating to disruptions varying in plannedness, scale, frequency, and duration. The first research question is therefore: '*To what extent is a lens of disruption applied in current UK sustainable travel policy and practice?*' This research question examines whether the opportunities presented by specific types (e.g., planned versus unplanned) of transport environment change are understood as opportunities, as well as whether the overall lens of 'disruption' as a tool for policymaking is utilised or considered to be useful. To further understand the underlying reasons why such opportunities are, or are not, recognised and incorporated into current practice, the second research question asks: '*What are the contributing and constraining factors to whether a lens of disruption is applied in current UK policy and practice?*' The purpose of this question is to review good practice where it exists, to understand where the barriers are for effectively leveraging disruptions in the transport environment, and to draw out potential ways forward for maximising policy effectiveness.

2. Method

To answer the question of whether a lens of disruption is applied in current UK policy and practice, this study draws on in-depth interviews alongside analysis of key documents relating to sustainable transport strategy.

2.1. Interviews

Semi-structured interviews were conducted between July and September 2023 with 23 transport practitioners representing 12 organisations, including local authorities, transport partnerships, and transport providers, spanning the UK (as shown in Fig. 1). Interviewees were recruited initially via the immediate professional network of the author and through the professional networking site LinkedIn, followed by subsequent snowball sampling (i.e., interviewees were asked to invite colleagues they thought would be appropriate for the study). A broad sampling strategy was adopted to recruit organisations ranging in governance tier (e.g., single tier, district or borough, combined authority, and national authority) and for general approach to environmental sustainability (e.g., based on Climate Scorecards; (Climate Emergency UK, 2021). This strategic approach was designed to ensure that the views captured were comprehensively representative of the broad spectrum of the transport profession in the UK. Employees from strategically chosen organisations were identified and contacted with an invitation to participate in the research. While several, but not all, responded to this request, many employees from uncontacted organisations also volunteered to participate. The resulting sample consists of professions where key decisions are made related to the sustainable mobility transition; interviewees were employed in a variety of job roles of differing levels of seniority, including in transport planning, policy development and innovation, programme and project management, and public engagement. Moreover, while the interviewees' positions and organisational backgrounds certainly impacted their viewpoints, it is important to note that their responses were not representative of their organisation, as many explicitly stated. One interviewee additionally requested for their organisational affiliation to be kept anonymous. All interviews took place online via Microsoft Teams and lasted between 40–65 min. Interviewees were recruited until the contents of the interviews had reached saturation point, meaning that no fresh topics or perspectives were introduced.

The content of the interview schedules broadly related to approaches to behaviour change and considerations of disruptions as opportunities. More specifically, interviewees were asked for: some background about their role and its relation to behaviour change; the types of measures or policies currently used to encourage travel behaviour change; what kind of approaches they believed would be most effective for behaviour change; what the biggest barriers or constraints for achieving behaviour change were; and for their perspectives on different types of disruptions and the opportunities or risks they presented for behaviour change. Since the interviewees represented a range of roles, the specific questions asked in each interview varied, though these topics were broadly addressed in all interviews.

All interviews were recorded with permission, with transcripts automatically produced using Microsoft Teams' auto-transcription software. Through revisiting recordings, the transcripts were checked and edited for accuracy, with most filler words (e.g., 'um', 'er') removed. A systematic approach based on Braun and Clarke (2006) was utilised to analyse transcripts, involving becoming familiar with the data, applying and grouping manual codes, whereby key passages and quotations were highlighted and transferred to a separate spreadsheet, reviewing data and defining themes. Initially, broad themes were imposed relating to the broad research questions (e.g., how disruptions were conceptualised, barriers to adopting a disruption lens), and sub-themes were inductively developed based on interviewee responses (e.g., negative perceptions of unintentional transport disruptions) (see Fig. 2). The contributions from interviewees have been anonymised, and are referred throughout this paper as I01, I02…I23.

2.2. Document analysis

Document analysis was also conducted to supplement findings from interviews by comparing interviewee responses to the official behaviour

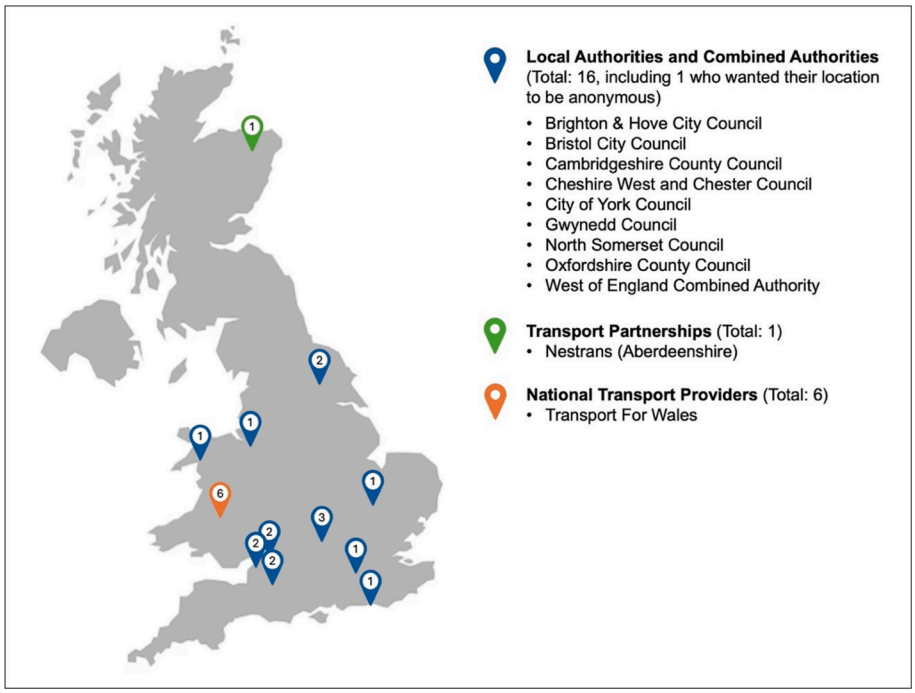

Fig. 1. Map showing interviewee numbers by organisation type.

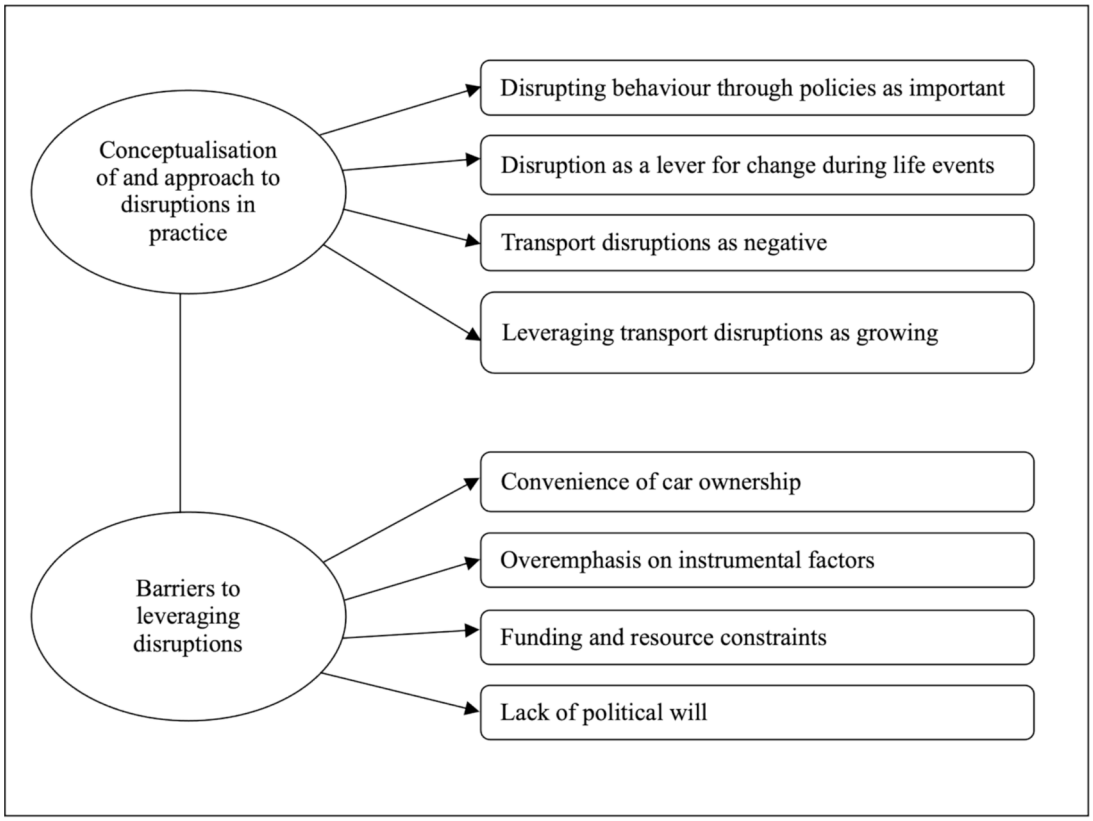

Fig. 2. Thematic map of current practitioners' approaches and perceived barriers to leveraging transport disruptions.

change strategies outlined by organisations. In particular, key sustainable transport policy and strategy documents for relevant organisations from each geographical area represented by interviewees were analysed, including broader national and regional documents to provide a deeper understanding of the policy context. The document analysis followed sequentially from the analysis of interview transcripts. The thematic structure derived from the interviews was applied to the documents to verify compatibility with their contents. This primarily consisted of identifying the extent to which 'disruptions', 'moments of change', or similar terms (e.g., 'windows of opportunity', 'transitions') were

referenced. Additionally, documents were analysed regarding the types of behaviour change strategies prioritised (e.g., voluntary behaviour change measures, built environment interventions) alongside the various constraints identified by interviewees (e.g., limited funding, concerns with public acceptability). For example, the extent to which strategies highlighted or referred to public acceptability was explored to gauge how influential this is for policy building (e.g., whether public acceptability fears have led to a reluctance to adopt more 'disruptive' measures). The documents that were analysed are displayed in Appendix A, Table A1.

3. Findings

The findings are broadly presented relating to the research questions (for a summary of key findings, see Table 1). First, the way in which disruptions are conceptualised and approached in UK transport policy is discussed, including perceptions about current policy approaches and how they can be more 'disruptive', levels of understanding of the mechanisms underlying disruptions' effectiveness on behaviour change (e.g., habit discontinuities), and views on leveraging non-policy disruptions (e.g., road closures). An investigation of the barriers to adopting a lens of disruption in UK policy then follows.

3.1. How disruption is conceptualised and approached in practice

3.1.1. Disrupting behaviour through policies is considered important

When asked about approaches to achieving behaviour change, interviewees shared that achieving the necessary shifts in travel behaviour requires a comprehensive policy packages which not only 'pull' people, but also 'push' them, towards desired behaviours, reflecting a broad understanding within literature that interventions combining both 'push' and 'pull' strategies are more effective and popular compared to those which comprise only one or the other (Thaller et al., 2021; Xiao et al., 2022). Supported measures varied, but preferred 'pull' policies generally involved improving the frequency, accessibility, and pricing of public transport and making cycling and walking easier through infrastructure, while most 'push' policies referred to user charging and limiting parking space. This 'policy bundling' approach was also commonly supported in key strategic documents, proposing new and improved public transport and active travel infrastructure to be supported by 'behaviour change measures', typically referring to VTBC strategies (e.g., skills training, education, information campaigns, and personalised travel planning). Often accompanied by a sense of urgency to meet climate goals, the majority of interviewees further recognised that more drastic 'push' measures disrupting car use (e.g., through changes brought about by spatial planning) than those commonly supported in strategies need to be prioritised, especially due to limited success of historical approaches centring around promoting voluntary behaviour change. This growing support for more disruptive (e.g., push) measures suggested a potential underlying openness to strategies that leverage disruptions to promote behaviour change.

3.1.2. Understanding of habitual disruptions as levers for change

A few interviewees acknowledged part of the reason firmer measures, particularly those which alter features of the built environment, might be so effective is because of habits: "*we're also quite habitual and […] we have to move things around people, not expect them to move, because it's just not gonna happen*" (I13). There was a general understanding that disrupting ingrained habits more widely is important for transport policy; approximately one third of interviewees independently raised the windows of opportunity that might be presented by life events. A few interviewees reflected on how this can theoretically translate into practice, including the delivery of travel packages to residents of new housing developments or new employees of businesses, as well as school travel plans.

Strategic documents rarely identified opportunities presented by different 'moments of change', and where they did, they also typically referred to life transitions (e.g., moving home). For example, North Somerset Council's Transport Behaviour Change Strategy (D19) highlights the importance of habits as a barrier to behaviour change, suggesting that 'windows of opportunity' can be utilised through focusing on active travel in new housing developments and working with businesses and schools to 'make sure that new starters have the tools to make active and sustainable travel choices' (p6). However, it was made apparent through interviews that planning obligations (e.g., Section 106 under the Town and Country Planning Act 1990) were often responsible for driving these instances of good practice, whereby new housing developments are required to involve travel planning or promotion of local active travelling and public transport routes.

Moreover, while it is positive that interviewees demonstrated some recognition of personal life disruptions as opportunities for policymakers, they often struggled to recall how this has translated to practice in their area. Further, beyond a few mentions of ingrained travel habits being barriers for change, rarely did interviewees express more detailed understandings of wider disruptions (including transport environment disruptions) being important levers for habit discontinuities. Indeed, while there was broad acknowledgement in both documents and by interviewees of the importance of infrastructure change, either in the form of new/improved sustainable transport infrastructure or through removal of space or access to private vehicles, these events were not considered conceptually as 'moments of change' in the same way life transitions were.

These limitations in understanding were also reflected in interviewees' remarks that transport policies are not always ambitious enough, and that there may be gaps in knowledge at a higher strategic level of how to maximise behaviour change alongside infrastructure delivery, with sentiments like "*we do tend to just kind of build it and hope they will come" (I05)*. Given that there tends to be a strong emphasis on instrumental factors (i.e., referring to the functionality or utility of travel modes; Schuitema et al., 2013; Steg et al., 2001) throughout all documents and among interviewees, it is possible that a limited organisational understanding of equally influential yet less conscious factors, such as habits, restricts the approaches used in practice. Factors such as reliability and affordability are certainly important for public acceptability and fairness (Gärling & Loukopoulos, 2007; Gärling & Schuitema, 2007), but the economisation of the costs and benefits of travel choices is not all that drives behaviour (Whittle et al., 2019).

3.1.3. Negative perceptions of non-policy transport disruptions

Although interviewees generally recognised opportunities presented by disruptive life events and disruptive policy interventions, 'transport disruptions' were usually perceived to be negative events. In particular, disruptions to road networks that were either planned (e.g., closure of roads for maintenance or planned works) or unplanned (e.g., due to accidents, flooding) were considered to be situations to be carefully managed to avoid impacts on travel. Although this is unsurprising given that many of these events arise as unintended network disruptions rather than being part of wider strategies to minimise car use, it also follows that a lack of deeper understanding of habit discontinuity processes translates to negative perceptions of wider transport disruptions. When asked more explicitly about whether transport disruptions of varying scale were ever recognised as opportunities by their organisations, it was clear that this was rarely done.

When asked to provide their views on whether leveraging disruptions *could* be achieved in practice, many interviewees felt that strategies that utilising disruptions like road closures to promote sustainable alternatives may not be sufficiently effective without a connected effort to also improve the availability and quality of non-car alternatives. This was particularly the case for rural environments, where it was felt that the geographical factors were deterministic for car use. Additionally, a few interviewees commented on the variability of timing for more temporary transport disruptions, with it not being considered worth the

Table 1
Key findings from interviews and document analysis.

Key Findings		Source	Examples from Interviews	Examples from Documents
How disruption is conceptualised and approached in practice	**Disrupting behaviour *through policies* is considered important**	Interviews	**I20:** *"We've tried encouragement for a long time, with limited success. […] If we're going to be serious about net zero then we need to do the sticks, the demand management measures. So that could be infrastructure like road space reallocation to bus lanes, cycle lanes and, you know, liveable neighbourhoods."*	
	Disruption mechanisms (e.g., habit discontinuity) understood in relation to life events but not transport disruptions	Document analysis and interviews	**I09:** *"It's usually at those life altering points that people make a change, isn't it? It's when you start a new job or when your kids start school, […] that's when you consider your alternatives. So I think it's about thinking about those kinds of life events that you can pack things onto that make it easy for people to make a different choice than just to get into their cars."*	**D19:** *"A 'window of opportunity' is usually caused by a large personal event or a change in circumstances, which makes people reconsider their attitudes, perceptions, preconceptions, and habits. […] this is a more likely time for people to make changes and develop new routines."*
	Transport disruptions often seen as negative	Document analysis and interviews	**I04:** "*the point at which a section of road is closed for improvement works, you're potentially sending people on a massive detour to do something that would have otherwise taken a couple of minutes […] so infrastructure works can be massive disruptions"*	**D06:** *"Deliver projects, initiatives and schemes in a co-ordinated way that minimises disruption"*
	Some examples of transport disruptions being leveraged in practice, but not considered through lens of disruption	Interviews (alongside lack of inclusion in documents)	**I10:** *"When we have a big disruption, and some of these disruptions are more useful than others, but let's say a significant amount of the road network is closed and there are good alternatives to walk or cycle, then it's a great opportunity to jump in there"*	
	Increasing openness to concept of leveraging disruptions	Interviews	**I11:** *"I think things like that, road closures and stuff, are something that we should explore more"*	
Barriers to leveraging disruptions	**Convenience of car ownership considered a barrier to effectively leverage road disruptions**	Interviews	**I20:** *"I think people are quicker to ditch other forms of transport if less disruption happens to that form of transport compared to the car and that just speaks to the level of car dependency that we have in our society […] if there was a forty-five minute delay to their journey they would still sometimes get in the car and go through with that delay instead of getting on the bus or the train."*	
	Overemphasis on instrumental factors	Document analysis and interviews	**I01:** *"Bus fares can be perceived as quite expensive. Reliability of buses […] and frequency of buses, the timetabling. […] So I think those are the three key factors about getting people out of their cars and onto public transport"*	**D29:** *"Feedback from focus groups and written responses called for improvements to all aspects of passenger transport. This included requests for […] lower fares, more direct bus links to local services especially hospitals, increased frequencies, better quality buses"*
	Funding and resource constraints are significant barriers to implementing more drastic policies	Interviews	**I05:** *"You have to make a really good case for investment in behavioural change. So I do think financial constraints, short-termism of funding streams, and the fact that the harsh reality is local authorities don't have funding for this kind of non-statutory activity anymore."*	
	Lack of political will is a large barrier to disruptive policy implementation	Interviews	**I14:** *"They want us to achieve lots of targets that they've set but then they're sort of hamstringing us by saying 'but we don't want you to upset any motorists'. Well, in that case, we're not gonna achieve any targets then."* **I18:** *"I think the current political climate is one of the biggest drivers against change at the moment because it's become a politicised issue when it shouldn't be."*	

effort of delivering interventions throughout some road closures that have shorter durations due to smaller anticipated take-up and impact. For these short-term disruptions (e.g., temporary road closures), in particular, many interviewees speculated that it might be difficult getting upper management to agree that they were worth considering, given the numerous, much larger challenges these organisation face. Some interviewees also queried when exactly during a disruption might be the best moment to intervene promoting behavioural alternatives, considering the way in which people might negatively respond (especially initially) to road disruptions. These reflections also raised questions about what classifies a significant enough disruption to impact behaviour and in particular how much physical disruption during the infrastructural change is needed to destabilise car use.

3.1.4. Examples of good practice and openness to leverage transport disruptions

While it was clear that leveraging road disruptions was not a common practice, one interviewee (I06), described their work on the delivery of transport infrastructure projects as "*it's almost that we are the major disruptive change, […] we are the big change happening in people's lives, in people's areas.*" This broad conceptualising of infrastructure change as a 'moment of change' is then expanded regarding practice, whereby the interviewee suggested that additional measures (e.g., e-bike schemes) could be implemented alongside infrastructure works, or existing schemes or active travel infrastructure could be promoted. However, the interviewee goes on to acknowledge that this is not something their organisation consciously considers or a widespread practice in their area.

One interviewee (I10) from Bristol Council, however, also remarked that '*when [Bristol has] a big disruption, and some of these disruptions are more useful than others, but let's say a significant amount of the road network is closed and there are good alternatives to walk or cycle, then it's a great opportunity to jump in there*'. Here, the interviewee not only acknowledges the opportunities offered by moments of infrastructural change, albeit without the context of habit discontinuity specifically, but also shows a deeper understanding of the potential impacts from different scales of disruption, and the need for good alternatives to be in place. The interviewee went on to describe how their organisation has used this approach in practice in the form of a credit mobility scheme where residents experiencing a transport disruption (implementation of the Bristol Clean Air Zone) were presented with £100 worth of travel offers (for e.g., bus or train tickets, bike loan, cycle training, car club credit, scooter credit). This is described by the interviewee as a holistic approach in which the alternatives are offered and promoted alongside disruptions to encourage the desired behavioural shifts. Importantly, the Bristol example was described as an *infrequent, planned* occurrence for which there had been a lot of prior preparation to minimise the negative impacts, which was seen as essential for bringing residents onboard. The level of success of this approach, however, is described as relatively unknown due to a lack of sufficient monitoring and evaluation, a weakness that many interviewees recall in relation to behaviour change practices.

While most interviewee responses were mixed when asked to reflect on the possible opportunities and risks associated with leveraging transport disruptions, several interviewees acknowledged that this is an approach that could be considered: *"I think things like that, road closures and stuff, are something that we should explore more"* (I11). This was more the case for planned, smaller-scale road disruptions where authorities were felt to have more power to minimise negative impacts of the disruption, while being able to prepare to deliver information and incentives in advance of the disruptive event. The potential openness to leveraging disruptions was also reflected by some interviewees in a shift in mindset brought on over the COVID-19 pandemic, whereby emergency funding and emergency traffic regulation orders (TROs) offered opportunities to more quickly implement temporary physical street changes (e.g., temporary road closures and pedestrianisation of streets). While most remarked that many temporary measures have now been reversed, and that many of the changes delivered over the lockdowns were received negatively by the public due to insufficient consultation, the period of disruption over the pandemic appeared to have sparked a transition in the way wider disruptions are considered in behaviour change policy among multiple interviewee responses. Indeed, one interviewee (I06) responded that while capitalising on existing road disruptions is not a common practice, *"there's a lot more openness to do that than there would have been pre-pandemic"*.

3.2. Barriers to leveraging disruptions

While there was some recognition of the importance of policy disruptiveness among interviewees, the ability to adopt a disruption framework appeared to be stifled by several barriers, including perceptions of the convenience of car ownership and use, organisational (e.g., funding and resource) constraints and political fears of public backlash.

3.2.1. Convenience of car ownership

There was support among interviewees that the convenience and ease of car ownership is a significant barrier to the effectiveness of leveraging road disruptions. For example, interviewees reflected on the almost inevitability of 'losing' rail travellers during *public transport* disruptions (e.g., strikes, delays and cancellations), whereas the perceived benefits of car ownership and use (e.g., comfort, independence, and freedom) would fail to result in significant modal shift during *road* disruptions. The perceived resilience amongst car users may reflect responses to shorter-term events (e.g., temporary road closures) or smaller-scale (e.g., impacting one road or neighbourhood rather than entire city) resulting in 'traffic displacement', rather than 'traffic evaporation' (i.e., demand reduction), for example. This displacement of traffic was described as a knock-on effect which poses a significant issue for garnering public support, since the transfer of congestion from one area to another creates public upset from newly affected residents. However, while traffic displacement does appear following an initial change to the road network, research suggests that over time, car use eventually reduces, especially for larger scale or more permanent changes (Marsden et al., 2016; Nello-Deakin, 2022). As one interviewee remarked, however, the stabilisation of traffic levels relies on no further disruption to the network, whereas an example of the implementation of one LTN shortly following another LTN in a neighbouring area was felt to be a tumultuous period in which the continuous disruption and backlash made the schemes appear to have been largely unsuccessful. Again, this raises further questions regarding multiple and interacting disruptions and how they impact behaviour change and overall public response.

3.2.2. Funding and resource constraints

Several interviewees noted that there was very little or no input from psychological experts during policy development, with many behaviour change-focussed teams having been scrapped due to funding cuts and any existing behaviour change roles "*scratching around trying to find funding pots to sort of keep them going*" (I14). Funding and resource constraints were a commonly cited challenge regarding the feasibility of delivering more disruptive measures beyond infrastructure provision, in particular the fact that local authorities tend to be 'capital rich, revenue poor' meaning that funds are sufficient for basic infrastructure projects but limited for additional behaviour change work or more experimental projects. Within this funding landscape, interviewees remarked that pressures of needing to deliver infrastructure and keep within limited budget and timeframes also led to a lack of holistic thinking (e.g., not considering the targeting of important psychological characteristics alongside delivery of new infrastructure).

3.2.3. Lack of political will

Interviewees additionally identified several challenges relating to lack of political will and fears of negative public response as preventing delivery of disruptive policies and interventions. More 'coercive' measures were widely acknowledged to be politically unattractive, with most interviewees agreeing that politicians' reluctance to upset motorists limits the breadth of policies that can be delivered. Indeed, where more disruptive policies (e.g., roadspace reallocation and liveable neighbourhoods) were proposed in documents, careful, positively-framed language was understandably used, with a prominent focus on public acceptance. With these more controversial policies (e.g., road user charging, removal of road space) there also tended to be a lack of clarity regarding implementation, which many interviewees reflected on as an additional barrier to delivering disruptive policy. Most interviewees further agreed that political leaders who are unafraid of making these controversial decisions in order to break out of the 'vicious cycle' of car dependency are needed, with many expressing frustrations about government plans which aim to *improve* the driving experience and *limit* measures that might reduce car use (e.g., LTNs; UK Government, 2024). Indeed, research findings from Thaller et al. (2021) highlight the need for political courage to deliver these more disruptive policies considering that public acceptance often increases once people have experienced the changes. Additionally, however, some research highlights the importance of practitioners to overcome their 'transport planning inertia' and follow through with bolder leaders' promises to implement more disruptive policies (Lyons, 2018). Broadly, the culture of unwillingness to upset motorists likely results in a policy environment which generally fails to consider transport disruptions to be opportunities to promote sustainable behaviour change.

4. Discussion

4.1. Summary of findings

The present paper aimed to explore perspectives of transport practitioners on current approaches to behaviour change, with a view to understanding the extent to which a lens of disruption (i.e., where transport environment disruptions of varying scales are considered as opportunities for policy) is or could be adopted. Interviews were undertaken with 23 individuals employed by a variety of UK-based transport organisations, including local authorities and transport delivery partners. Supplementary document analysis of key behaviour change-relevant strategies was also conducted. Analysis highlighted support for comprehensive policy packages combining 'push' and 'pull' strategies, emphasising the importance of disruptive interventions to meet climate goals. However, there is a gap between a recognition of the importance of disruptiveness within policy design and conceptualising disruptions as opportunities more widely. Some interviewees expressed some openness to leveraging transport disruptions, such as road closures, but concerns existed regarding ensuring the availability and adequacy of non-car alternatives, understanding when, during a disruption, interventions are best timed, as well as how to manage knock-on effects (e.g., traffic displacement). Additionally, the resilience of car ownership was considered to pose challenges to this approach, alongside various wider, contextual constraints, including those relating to feasibility, such as funding and resource limitations, and those relating to acceptability, including the lack of political will to 'upset' motorists.

4.2. Discussion

The current paper advances on previous research (e.g., Marsden, 2024), highlighting the benefits of a disruption framework in transport policy, and presents novel findings relating to transport practitioners' perspectives on adopting this approach in UK transport policy and practice. Findings suggest that the concept of disruptions as opportunities is not yet widely understood, although there is some recognition of their potential. The discussion will explore this gap, the nuances in perceptions of disruptions, barriers to adopting a disruption lens and its wider implications.

While the current paper highlights that various transport disruptions provide valuable opportunities for policymakers to promote sustainable travel choices when people may be more amenable to change, findings reveal a limited practical understanding of this concept. While interviewees readily recognised the importance of disruptiveness in policy packages and identified opportunities presented by disruptive life events (e.g., residential relocation), such as incorporating active travel promotion into new housing developments, they struggled to translate this understanding to transport disruptions. This difference in perception likely stems from a limited understanding of the psychological processes underlying the importance of disruptiveness (e.g., habit discontinuity) and a tendency in transport planning to focus on restoring transport systems to their previous state. Current perspectives, however, suggest a potential area for knowledge transfer, where the principles applied to personal life events can inform strategies for leveraging wider transport disruptions. These findings suggest that practitioners should be further educated about the potential benefits of leveraging disruptions, providing clear examples of successful interventions and highlighting the role of psychological factors in shaping travel choices. This educational effort could involve workshops, training materials, or collaborations with behavioural scientists to enhance practitioners' understanding of the complex interplay between disruptions and behaviour change.

Further, the current findings revealed interesting nuances in the ways that different types of transport disruptions are perceived by practitioners. For interviewees, the effectiveness of leveraging a disruption depends on factors like the adequacy of existing alternatives, the specific timing of policy interventions, and the potential for unintended knock-on effects like traffic displacement. Planned disruptions (e.g., low emission zones, planned roadworks), particularly those covering a larger geographical area and lasting a longer duration, were considered to offer more opportunities to promote and embed sustainable travel habits as they provide more time to prepare policy measures and mitigate negative impacts. Additionally, leveraging smaller-scale or more temporary disruptions was considered 'not worth the effort', particularly as the transport environment often 'returns to normal' following shorter-term disruptions (e.g., temporary roadworks), leading to concerns that old behaviours may reappear. Nonetheless, while these findings highlight the importance of designing policies that consider the varied scales of plannedness, scale, duration, and frequency of transport disruptions, they also highlight a gap in practitioner awareness regarding the potential to disrupt travel habits during more temporary road changes – an opportunity that, though smaller than in longer-term disruptions, remains significant and often overlooked. Indeed, a recognition and leveraging of these opportunities could include, for example, delivering low-cost information toolkits that incorporate advice about alternative routes and journey variations to affected travellers.

Moreover, in order to successfully implement behaviour change strategies which leverage transport disruptions, the wider constraints highlighted by the interviewees in the present study must also be addressed. For example, the present research highlights the importance of prioritising investment in behaviour change strategies, with many interviewees attributing limitations in practice to constrained funding and resources. Monitoring and evaluation of schemes would also be improved through addressing the short-termism of current funding streams, whereby limited time and financial capacity disables the ability to thoroughly evaluate schemes. In addition, the finding that many practitioners criticise political leaders for their apprehension to deliver more ambitious transport policy reflects prevalent arguments within the literature that neoliberal forms of governance are unlikely to lead to net zero success within the transport sector (Gössling & Cohen, 2014). While the kinds of measures believed to be necessary (e.g., restricting car use)

are expected to receive public disapproval, interviewees expressed a desire for leaders to break conventional policy norms and accept the political and social consequences of implementing bold, transformative policies. Ultimately, the success of such ambitious transport policies hinges on comprehensive strategies that include public engagement and transparency about the long-term benefits of these changes. By demonstrating a visible commitment to sustainability, political leaders can foster a more supportive environment for the necessary transitions in the transport sector.

While the current study is grounded in the UK context, these principles also have broader applicability. The disruption framework that considers dimensions of plannedness, scale, frequency, and duration can be universally applied to identify opportunities for policy intervention regardless of national context. Similarly, notable international case studies could be explored regarding the ways in which disruptions of varying scale have been approached and successfully managed. For example, as part of Barcelona's Urban Mobility Plan, the city aims to implement 503 'superblocks' – large urban areas made up of several blocks that are closed off to vehicular traffic – by 2030 (Postaria, 2021). Representing a permanent, carefully designed, and large scale (one in three streets in the city is planned to be affected) transport environment disruption, Barcelona's superblocks have received contentious public response but, for those already implemented, have shown some initial improvements in key environmental and health indicators (EU Urban Mobility Observatory, 2022; Nieuwenhuijsen et al., 2024). Furthermore, cultural differences may play a critical role in shaping responses to varied transport environment disruptions. For example, residents in urban centres with historically high levels of car dependency and strong pro-car attitudes may require more extensive intervention support, including comprehensive pre-planning, public consultation, and incentives to shift toward sustainable modes of transport.

Additionally, many of the barriers (e.g., funding and resource constraints) identified in the current research may similarly apply to other nations (e.g., Poland; International Transport Forum, 2023) whose limited investment in transport infrastructure and policy may result in inadequate capacity to adopt ambitious disruption-led approaches. Greater international collaboration and knowledge sharing regarding best practices for managing and leveraging disruptions would result in more adaptable strategies that cater to the unique characteristics of specific socio-economic and geographical contexts.

4.3. Recommendations for policymakers

The following recommendations synthesise the present study's findings into a clear pathway for policymakers to adopt a lens of disruption in sustainable transport policymaking.

First, policymakers should aim to move beyond reactive responses to disruptions and instead adopt a proactive approach which anticipates and leverages potential disruptions for sustainable transport goals. These mainly refer to unplanned road disruptions or planned roadworks, neither of which are commonly considered in sustainable transport strategies. Second, policymakers would benefit from adopting a framework, such as the one presented in the current paper, to identify potentially opportunistic disruptions. From this, policymakers can assess the varied classifications of disruptions (e.g., ones that are planned vs. unplanned, have a small vs. large geographical scale, etc) to determine their potential for tailored policy interventions. Tailored policy responses can then be developed, giving consideration to the specific timing of interventions, the likelihood of unintended knock-on effects (e.g., traffic displacement), and potential negative impacts on different groups (e.g., those with mobility issues). Finally, policymakers should aim to analyse the outcomes of past transport disruptions to refine their understanding of how disruption impacts travel behaviour and improve their strategies for future interventions.

4.4. Recommendations for further research

The current study utilised a robust sampling strategy in which a variety of organisation types, varying in governance tier, approach to climate change, and geographical location were targeted. While the study focused on the expertise of transport *practitioners* involved in making key transport policy decisions in the UK, future research could incorporate a wider set of stakeholder perspectives, for example from politicians and transport charities (e.g., Sustrans), to provide different perspectives on governance and decision-making alongside additional insights into current behaviour change approaches and how 'moments of change' can be best utilised in practice.

Moreover, the nuanced perceptions of transport disruptions presented in the current findings, such as the plannedness, duration, scale, frequency, and interactions between multiple disruptions, need to be further explored to better understand the features of infrastructural moments of change that might result in lasting behaviour change. For example, while longer-term or larger-scale infrastructure projects might more easily foster permanent shifts in travel behaviour, the ways in which durable behaviour change can be achieved during shorter-term, unplanned, or smaller scale changes requires more exploration. By investigating these nuances in greater depth, practitioners can gain a more detailed understanding of how to leverage disruptions to promote lasting and meaningful behaviour change.

4.5. Conclusion

Adopting a lens of transport disruptions as 'moments of change', whereby affected travellers are more amenable to change due to processes of habit destabilisation, may lead to the delivery of more impactful behaviour change policies. The current research provides an in-depth analysis of the perspectives of UK transport practitioners on leveraging transport disruptions as opportunities to promote sustainable travel choices. Interviews with 23 transport practitioners and document analysis revealed that while there is some understanding of the importance of disruptiveness within policy design and of certain types of personal disruptions (e.g., residential relocation), conceptualising wider transport disruptions (e.g., road closures) as opportunities was uncommon. Recommendations for policymakers are presented, including developing a cohesive framework that explicitly views disruptions as potential levers for change.

CRediT authorship contribution statement

Tara McGuicken: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Lorraine Whitmarsh:** Writing – review & editing, Supervision. **Samuel Hampton:** Writing – review & editing, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

Table A1
Key transport strategic documents analysed, relating to UK geographical areas represented by interviewees.

Short code	Author(s)	Title of document
D01, 2021: Decarbonising Transport	Department for Transport, Active Travel England	Decarbonising Transport
D02, 2020: Gear Change	Department for Transport, Active Travel England	Gear Change: A Bold Vision for Cycling and Walking
D03, 2022: CWIS2	Department for Transport, Active Travel England	The second cycling and walking investment strategy
D04, 2015: BHCC Sustainability Action Plan	Brighton & Hove Council	City sustainability Action Plan
D05, 2021: BHCC Carbon Neutral Programme	Brighton & Hove Council	Carbon Neutral Programme
D06, 2015: BHCC LTP4	Brighton & Hove Council	Local Transport Plan 4
D07, 2022: BHCC LCWIP 2022	Brighton & Hove Council	Local Cycling and Walking Infrastructure Plan
D08, 2023: WECA Climate and Ecological SAP	West of England Combined Authority	Climate and Ecological Strategy and Action Plan
D09, 2021: WECA Transport Delivery Plan	West of England Combined Authority	Transport Delivery Plan
D10, 2022: WECA Transport Settlement	West of England Combined Authority	Sustainable Transport Settlement
D11, 2020: WECA JLTP4	West of England Combined Authority	Joint Local Transport Plan 4
D12, 2020: WECA LCWIP	West of England Combined Authority	Joint Local Cycling and Walking Infrastructure Plan
D13, 2020: BCC One City Climate Strategy	Bristol City Council	One City Climate strategy
D14, 2019: BCC Transport Strategy	Bristol City Council	Bristol Transport Strategy
D15, 2022: NSC Climate emergency Action Plan	North Somerset Council	Climate emergency action plan
D16, 2021: NSC Active Travel Strategy	North Somerset Council	Active Travel Strategy
D17, 2023: NSC Place and Movement Framework	North Somerset Council	Place and Movement Framework
D18, 2023: NSC Liveable Neighbourhoods ATAP	North Somerset Council	Liveable Neighbourhoods Active Travel Action Plan
D19, 2023: NSC Transport Behaviour Change ATAP	North Somerset Council	Transport Behaviour Change Active Travel Action Plan
D20, 2021: CPCA CPICC	Cambridgeshire and Peterborough Combined Authority	Cambridgeshire & Peterborough Independent Commission on Climate
D21, 2020: CPCA LTCP	Cambridgeshire and Peterborough Combined Authority	Local Transport and Connectivity Plan
D22, 2022: CCC Climate Change Strategy	Cambridgeshire County Council	Climate Change and Environment Strategy
D23, 2015: CCC Long Term Transport Strategy	Cambridgeshire County Council	Long Term Transport Strategy
D24, 2015: CCC LTP	Cambridgeshire County Council	Local Transport Plan
D25, 2022: CCC LCWIP	Cambridgeshire County Council	Local Cycling and Walking Infrastructure Plan
D26, 2023: CCC Active Travel Strategy	Cambridgeshire County Council	Active Travel Strategy
D27, 2023: CCC Active Travel Design Guide	Cambridgeshire County Council	Active Travel Design Guide
D28, 2019: CWAC Climate Emergency Plan	Cheshire West and Chester	Climate Emergency Response Plan
D29, 2017: CWAC Local Transport Strategy	Cheshire West and Chester	Local Transport Strategy
D30, 2020: CWAC LCWIP	Cheshire West and Chester	Local Cycling and Walking Infrastructure Plan
D31, nd: CWAC Cycling Strategy	Cheshire West and Chester	Cycling Strategy
D32, 2020: OCC Climate Action Framework	Oxfordshire County Council	Climate Action Framework
D33, 2023: OCC Strategic Plan	Oxfordshire County Council	Strategic Plan
D34, 2023: OCC Network Management Plan	Oxfordshire County Council	Network Management Plan
D35, 2020: OCC LCWIP	Oxfordshire County Council	Local Cycling and Walking Infrastructure Plan
D36, 2022: OCC LTCP5	Oxfordshire County Council	Local Transport and Connectivity Plan 5
D37, 2023: OCC Central Travel Plan	Oxfordshire County Council	Central Oxfordshire Travel Plan
D38, 2022: OCC Active Travel Strategy	Oxfordshire County Council	Active Travel Strategy
D39, 2022: CYC Climate Change Strategy	City of York Council	Climate Change Strategy and Action Plan
D40, 2011: CYC LTP3	City of York Council	Local Transport Plan 3
D41, 2021: CYC Council Plan	City of York Council	City of York Council Plan
D42, 2021: WG Wales Transport Strategy	Welsh Government	Welsh Gov Llwybr Newydd: the Wales transport strategy
D43, 2022: WG National Transport Delivery Plan	Welsh Government	Welsh Gov National Transport Delivery Plan 2022 to 2027
D44, 2023: TfW Remit Letter	Transport for Wales	Remit Letter
D45, 2021: TfW Corporate Strategy	Transport for Wales	Corporate Strategy
D46, 2022: TfW Comms Strategy	Transport for Wales	Communications and Engagement Strategy
D47, 2022: BCU Annual Report	Burns Commission (Welsh Gov, Transport for Wales	Burns' Commission Annual Report 2022
D48, 2023: BCU Annual Report	Burns Commission (Welsh Gov, Transport for Wales	Burns' Commission Annual Report 2023
D49, 2022: GC Climate Emergency Plan	Gwynedd Council	Climate and Nature Emergency Plan
D50, 2018: GC Council Plan	Gwynedd Council	Gwynedd Council Plan 2018–2023
D51, 2020: TS National Transport Strategy 2	Transport Scotland	National Transport Strategy 2
D52, 2022: TS NTS Delivery Plan	Transport Scotland	Scottish Gov National Transport Strategy Delivery Plan
D53, 2020: TS Active Travel Framework	Transport Scotland	Transport Scotland Active Travel Framework
D54, 2021: Nestrans Regional Transport Strategy	Nestrans Transport Partnership	Nestrans Regional Transport Strategy
D55, 2014: Nestrans ATAP	Nestrans Transport Partnership	Nestrans Active Travel Action Plan

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