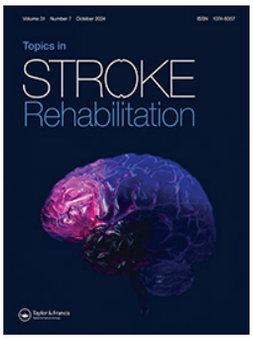

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What do employers need when supporting stroke survivors to return to work?: a mixed-methods study

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ABSTRACT

Background: Employers are key in supporting stroke survivors to return to work (RTW) but do not always have knowledge/skills or guidance to do so.

Objectives: To explore employers' needs for provision of post-stroke RTW support.

Methods: Mixed-methods study. Participants recruited through voluntary response/purposive sampling. Survey of employers investigated stroke knowledge (maximum score: 7), RTW process knowledge (maximum score: 8), and perceived competency for actions supporting RTW (maximum score: 100%). Regression analyses explored relationships between employers' demographic/contextual characteristics and knowledge and perceived competency scores. Interviews with employers explored factors influencing their post-stroke RTW support. Interview data were analyzed using a framework analysis. Survey/interview findings were synthesized with those from a qualitative systematic review.

Results: Across the survey ($n = 50$), interviews ($n = 7$), and review (25 studies), employers' support was influenced by stroke survivors' decisions to disclose stroke-related limitations, employers' knowledge regarding roles/responsibilities, employers' communication skills, and information provided by healthcare. Regression analyses: Human resources/occupational health support was positively associated with stroke knowledge (ß = 2.30, 95% CI 0.36–4.41, $p = 0.013$) and RTW process knowledge (ß = 5.12, 95% CI 1.80–6.87, $p = 0.001$). Post-stroke RTW experience was positively associated with stroke knowledge (ß = 1.36, 95% CI 0.46–2.26, $p = 0.004$) and perceived competency (ß = 31.13, 95% CI 18.40–44.76, $p = 0.001$). Organization size (i.e. working in a larger organization) was positively associated with RTW process knowledge (ß = 2.96, 95% CI 1.52–4.36, $p = <.001$).

Conclusions: Employers' RTW support was influenced by personal and environmental factors; they may benefit from education and guidance on stroke and their roles/responsibilities during the RTW process.

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KEYWORDS
Mixed methods; return-to-work; employment; stroke; vocational rehabilitation

1. Introduction

Annually, 15 million strokes occur worldwide.[1] In high-income countries, stroke incidence has increased among working-age people.[2–4] Stroke has been associated with more disabilities than any other condition,[5] including pain, fatigue, epilepsy, and problems with vision, hearing, communication, physical abilities, and cognition.[6] Such disabilities can restrict work participation for many years following stroke.[7]

Ongoing employer support is essential for making return-to-work (RTW) sustainable after stroke.[7] In many countries, employers are legally obliged to provide reasonable adjustments,[8] i.e. modifications to the work role/environment to eliminate or minimize barriers to a disabled person's work performance.[9] However, employers often lack access to adequate information and do not know how to implement or tailor them to disabled people's needs.[9,10] Vocational rehabilitation (VR), i.e. rehabilitative support for retaining-, or returning to and remaining in work after illness/injury,[11] may provide employers with advice on reasonable adjustments.

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However, VR is often delayed or unavailable through the National Health Service (NHS).[12,13] Where available, VR from the third sector, employer organizations, or government schemes may lack stroke-specific knowledge and expertise, or may not be comprehensive rehabilitative programs.[13] Work-related barriers to stroke survivors' return to- and retention in work include inadequate reasonable adjustments, high work pressures, and lacking or lack of RTW policies.[10,14,15] In the United Kingdom (UK), a survey of stroke survivors aged under 65 years ($N = 9254$), 37% reported stopping working post-stroke.[16] Respondents also reported: lack of employer support (9%), reduced working hours/responsibility (16%), missing out on promotion (4%), discrimination (6%), redundancy (5%), and career changes (6%). Online resources exist to guide employers through the RTW process and beyond, but templates to aid the application of learning are infrequently included. It is also unclear how acceptable, useful, and effective these resources are for guiding employers and stroke survivors. This study formed part of a needs assessment for a larger project,[17] working with stakeholders to co-design a self-guided, RTW intervention for employers and stroke survivor employees.[18] A previous qualitative systematic review[19] only identified three studies focused on factors influencing employers' RTW support for stroke survivors. Information on contextual characteristics, i.e. circumstances facilitating or hindering employers' support opportunities, was also limited. Further qualitative research was required to enhance the understanding of influential factors. It was also unclear which employers would benefit from a self-guided RTW intervention. Quantitative research was warranted to investigate the frequency of employer-related barriers (e.g. limited stroke knowledge) identified in the review[19] and to explore relationships between these barriers and employers' demographic characteristics. Therefore, this study aimed to explore employers' needs for supporting stroke survivors to return to- and stay in work post-stroke (see Figure 1 for objectives).

2. Materials and methods

2.1. Study design

This mixed-methods study had a concurrent triangulation design (survey, interviews).[20] An integrative, mixed-methods approach was important for increasing understanding and validity of findings from the previous systematic review.[19,21] Study objectives and linked data sources are shown in Figure 1. Ethical approval was obtained from the University of Nottingham Faculty of Medicine &

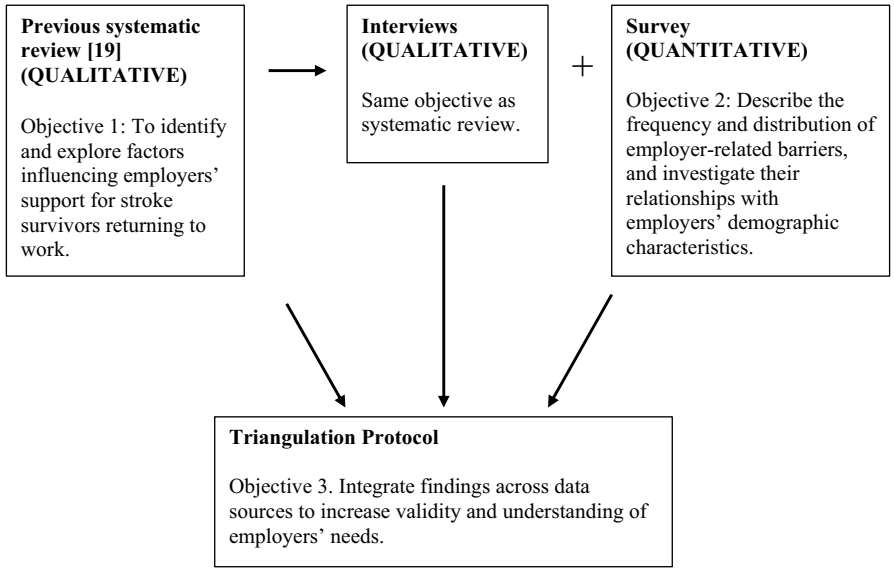

Figure 1. Study objectives and linked data sources.

Health Sciences Research Ethics Committee (ref: FMHS 166–1122). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement[22] was used to guide reporting of this article (Supplementary file S1).

2.2. Recruitment for the survey and interviews

All participants were recruited through voluntary response and snowball sampling. February–April 2023, the study was advertised on X and LinkedIn®, the Different Strokes charity website, and newsletters/bulletins of professional membership organizations, including the Royal College of Occupational Therapists – Specialist Work Section, Society of Occupational Medicine, Faculty of Occupational Health Nursing, Association of Occupational Health and Wellbeing Practitioners, University of Nottingham Business Network, and Social Enterprise UK. Emails with attached adverts were sent to 27 National Health Service (NHS) occupational health departments, university business schools, Federation of Small Businesses, the Business Support Organization, East Midlands Chamber of Commerce, Business for Health, other health/disability charities, and members of the researchers' networks, e.g. researchers in stroke rehabilitation, equality, diversity and inclusion professionals, and those working in the UK NHS, integrated Stroke Delivery Networks. KC attended business networking events and conferences (Health and Wellbeing at Work, European Life After Stroke) in the East Midlands, UK, to raise study awareness.

Eligible survey and interview employer participants were aged 18 years or older, working in an occupational role involving staff responsibility (i.e. responsible for decision-making and supportive actions during an employee's RTW following illness or injury). Employers are a hard-to-reach population,[23] and others have used this broad definition of "employer" in their research.[24] To be inclusive of all employers' needs, self-employed individuals were included, because they would be responsible for their own RTW process in the event of an illness or injury (including stroke). VR specialists who met the definition of employer were also included because they could add further description and insight into the barriers and facilitators experienced by employers when providing RTW support. All participants were also required to be proficient in the use of English language. Interview participants were required to have post-stroke RTW experience, either as a stroke survivor or someone supporting a stroke survivor, e.g. occupational health (OH) or human resources (HR) personnel and line managers. The survey was exploratory (i.e. not testing a hypothesis), so a formal sample size calculation was not required. Based on published guidance,[25,26] the sample size target was approximately 10 employers for the interviews. Survey participant information was presented at the survey; KC emailed interview participant information to those interested.

2.3. Data collection

2.3.1. Survey

The survey was administered via Microsoft Forms February–April 2023, with informed consent indicated by response. Depending on participants' post-stroke RTW experience (yes/no), answers could be hypothetical or real-life. Hypothetical responses were included to provide a more inclusive, comprehensive dataset for objective 2 (Figure 1), demonstrating employer-related barriers among those who had not yet supported a stroke survivor to RTW. Hypothetical responses also enabled investigation of the potential influence of post-stroke RTW experience in the statistical analyses. The survey tool assessed:

(1) Stroke knowledge (how strokes happen, risk factors, how strokes are treated, ways it can impact a person's abilities).
(2) RTW process knowledge (employers' role/responsibilities and relevant legislation, range of supportive actions potentially needed).
(3) Perceived competence for carrying out supportive actions (whether employers felt they had/would have the skills needed for particular actions, e.g. supporting stroke survivors to improve role-related confidence).

No preexisting measures were available; survey item construction was based on findings from the systematic review (Figure 1),[19] and information from the Stroke Association website. The survey tool (Supplementary file S2) was reviewed by two members of the expert advisory group, i.e. a stroke survivor/manager and HR consultant and wider project team (JH, JK, KR) for acceptability. Participation was anonymous, unless participants agreed to be contacted about future research.

2.3.2. Interviews

Semi-structured interviews were conducted by KC via Microsoft Teams February–May 2023. Eligibility was checked and informed consent verbally obtained at the start of interviews. Interview questions were informed by Theoretical Domains Framework (TDF) domains[27] and explored barriers and facilitators to supporting stroke survivors to RTW (Supplementary file S3). Interviews were visual audio recorded and transcribed within Microsoft Teams.

2.4. Data analysis

2.4.1. Survey

Survey data were analyzed by KC using SPSS (Version 28.0)[28] and STATA (Version 17).[29] Frequencies of responses per survey item and respondents' total scores per dependent variable were calculated. Frequency histograms revealed a non-normal distribution of scores, and therefore, non-parametric Mann-Whitney U tests were conducted to determine between-group differences in median scores for dependent variables.[30] Groups were defined by potential influential factors identified in previous research, i.e. employers' post-stroke RTW experience (yes/no),[19] organization size (small or medium-sized enterprises [SME]/large enterprises),[31] and access to HR or OH support (yes/no).[19] Where statistically significant differences were found between groups, exploratory univariate linear regression analysis was performed. More detailed description is provided in Supplementary file S4.

2.4.2. Interviews

Framework analysis[32] was conducted on interview transcripts using NVivo.[33] The coding framework was based on TDF domains.[27] Environmental levels were defined using the Disability Prevention Management Model,[34] with an additional code: local and global events. Coding was completed by KC, checked by BDP, and disagreements resolved through discussion. Theme constructions and summaries were produced by KC; these were checked with the wider project team (KR, JH, JK), and amendments made following group discussion.

2.5. Synthesis of data

The triangulation protocol[21] was followed to synthesize findings from the previous qualitative systematic review,[19] survey, and interviews. KC organized data within a matrix to construct meta-themes. The meta-themes were checked by CS and amendments made following discussion. KC and CS independently performed convergence coding per meta-theme, with disagreements resolved through discussion. Convergence codes included *full agreement*, *partial agreement*, *silence*, and *dissonance* (defined in Table 4).

3. Results

3.1. Survey

Fifty-four respondents participated in the survey; four were omitted from analyses (and not replaced because it was suspected they were bots), i.e. because they failed two or more validation checks, including the trick question, age or name check, and/or did not respond to the validation e-mail. Demographic characteristics of respondents are presented in Table 1.

More than half were aged less than 55 ($n = 33$; 66%); 46 (92%) were White, and 30 (60%) female. Most were managers/supervisors ($n = 22$; 46%), clinical supervisors (working in health-care professional roles) ($n = 10$; 20%), or business owners/directors ($n = 6$; 12%). Nearly half worked in human health and social work activities ($n = 22$; 44%), or manufacturing ($n = 10$; 20%) industries.

Table 1. Demographic details of the survey sample ($n = 50$).

Demographic details	Frequency (Percentage total)	Demographic details (continued)	Frequency (Percentage total)
Age group (prefer not to say=1 [2%])		**Gender**	
26-35 years	10 (20%)	Female	30 (60%)
36-45 years	19 (38%)	Male	18 (36%)
46-54 years	14 (28%)	Prefer not to say	2 (4%)
55 years or more	6 (12%)	**Occupational roles**	
Prefer not to say	1 (2%)	Manager/supervisor	22 (46%)
Race/ethnicity		Business owner and director	6 (12%)
White	46 (92%)	Head of health service/department	4 (8%)
Mixed or multiple ethnic groups	1 (2%)	Clinical supervisor (in healthcare professional roles)	10 (20%)
Asian or British Asian	1 (2%)	Other, e.g. massage therapist	4 (8%)
Prefer not to say	2 (4%)	Prefer not to say	4 (8%)
Personal experience of post-stroke return-to-work[1]		**Professional experience of post-stroke RTW**	
No	44 (88%)	No	30 (60%)
Yes	5 (10%)	Yes	20 (40%)
Prefer not to say	1 (2%)		
Organisation industry		**Number of years professional RTW experience with stroke survivors**	
Human health and social work activities	22 (44%)	<5 years	3 (6%)
Manufacturing	10 (20%)	6-10 years	10 (20%)
Arts, entertainment and recreation	3 (6%)	11-20 years	4 (8%)
No response to question (missing data)	3 (6%)	21-30 years	2 (4%)
Electricity/gas/steam/air conditioning supply	2 (4%)	31+ years	1 (2%)
Professional, scientific and technical activities	2 (4%)		
Public administration/defence; compulsory social security	2 (4%)		
Education	2 (4%)		
Agriculture, Forestry and Fishing	1 (2%)		
Construction	1 (2%)		
Administrative and support service activities	1 (2%)		
Other service activities	1 (2%)		

[a]RTW = Return to work.

Twenty respondents (40%) had professional experience of supporting someone to RTW post-stroke and 17 (34%) had 6 or more years' experience of this. Five respondents (10%) had personal experience of RTW post-stroke.

Employers' median stroke knowledge score was 7 (Inter-quartile range [IQR] 4.75 to 7) ($n = 50$). The median RTW process knowledge score was 6.5 (IQR 4 to 8) ($n = 50$) and median perceived competency score 83% (IQR 67% to 100%) ($n = 48$). Two respondents were omitted from the last analysis due to having three or more item responses (out of a possible six), indicating action was not applicable (i.e. there were insufficient data to answer the question).

Mann-Whitney U-test results are shown in Supplementary file S5. Regression analysis results are shown in Table 2. Access to HR/OH support was positively associated with stroke knowledge scores (ß = 2.30, SE = 0.97, 95% CI 0.36–4.41, p = 0.010) and RTW process knowledge scores (ß = 5.12, SE = 1.28, 95% CI 1.80–6.87, p = 0.001). Experience of post-stroke RTW was positively associated with stroke knowledge scores (ß = 1.36, SE = 0.45, 95% CI 0.46–2.26, p = 0.004) and perceived competency scores (ß = 31.13, SE = 6.54, 95% CI 18.40–44.76, p = 0.001). Organization size (large/SME) was positively associated with RTW process knowledge scores (ß = 2.96, SE = 0.75, 95% CI 1.52–4.36, p=<.001). This association weakened but remained borderline statistically significant when adjusted for access to HR/OH support (ß = 1.94, SE = 0.92, 95% CI 0.02–3.81, p = 0.050). Based on a statistical significance threshold of $p < .05$, significance of all other associations remained following adjustment for confounder variables (Table 2).

3.2. Interviews

All those expressing interest participated in the interviews; their demographic characteristics ($n = 7$) are presented in Table 3. The broad definition of "employer" enabled perspectives from an administration manager and HR officer. Others gave perspectives from stroke survivor ($n = 3$) or VR specialist viewpoints ($n = 2$); they included an HR manager, supervisor/dental nurse, business owner/therapist, and clinical supervisors/occupational therapists.

Framework analysis themes are summarized hereafter. A detailed overview of findings is

Table 2. Results from the survey linear regression analyses.

Dependent variable	Independent/predictor variable	Potential confounding variable	Correlation co-efficient (ß)	SE[d]	95% CI[e]	p-value
Stroke knowledge	Experience of post-stroke RTW (yes/no)	None (unadjusted)	1.36	0.45	0.46-2.26	0.004
		Age	1.17	0.39	0.42-1.92	0.006
		Organisation size (large/SME)	1.32	0.43	0.51-2.16	0.005
		Occupational role (Managerial or leadership role/Other)	1.49	0.46	0.56-2.42	0.002
		Organisation industry (human health and social work/other)	1.11	0.38	0.39-1.86	0.011
	Access to HR/OH support (yes/no)	None (unadjusted)	2.30	0.97	0.36-4.41	0.013
		Organisation size (large/SME)	2.57	1.02	0.56-4.57	0.010
RTW process knowledge	Organisation size (large/SME[c])	None (unadjusted)	2.96	0.75	1.52-4.36	<.001
		Occupational role (Managerial or leadership role/Other	3.09	0.80	1.52-4.64	0.002
		Access to HR/OH support (yes/no)	1.94	0.92	0.02-3.81	0.050
	Access to HR/OH support (yes/no)	None (unadjusted)	5.12	1.28	1.80-6.87	0.001
		Organisation size (large/SME)	3.72	1.48	0.16-6.25	0.017
Perceived competency for carrying out RTW process actions	Experience of post-stroke RTW (yes/no)	None (unadjusted)	31.13	6.54	18.40-44.76	0.001
		Age (<40 years/ 40-50 years/ 50+ years)	28.93	6.68	16.49-43.15	0.002
		Organisation size (large/SME)	32.01	6.46	19.51-45.43	<.001
		Occupational role (managerial or leadership role/other)	33.54	6.88	20.44-45.55	<.001
		Organisation industry (human health and social work/other)	30.10	6.81	16.76-43.70	0.001

[a]RTW = return to work; [b]HR/OH = human resources/occupational health support; [c]SME = small and medium-sized enterprises; [d]SE = standard error; [e]CI = confidence interval. Note: shaded cells indicate results where the beta co-efficient altered by >10% with addition of the confounder variable into the analysis.

Table 3. Demographic characteristics of the interviewees ($n = 7$).

Participant ID[a]	Role/s of employer and stroke survivor	Contextual details of organisation/s discussed	RTW[b] outcome/s (Yes/No/Unknown), primary factor that reportedly contributed to outcome/s
SS_01	Human Resources manager	Hospitality and tourism SME[b]	No, made redundant by SME
SS_02	Clinical supervisor/Dental nurse	NHS[b] hospital dental clinic	Yes, has part-time hours (4 days/week)
SS_05	Business owner/physiotherapist	Private rehabilitation services SME	Yes, alters working pattern regularly to fit capabilities
E_04	Administration manager Stroke survivor role: Staff member of appointments team	NHS hospital, radiology	No, not possible to initiate RTW process due to stroke survivor's residual limitations
E_07	Human Resources officer Stroke survivor role: Busher	Large manufacturing factory	No, no suitable role available due to stroke survivor's residual limitations
OT_03	OT/supervisor (VR specialist). Discussed two cases: (a) Stroke survivor role: Lead fundraiser (b) Stroke survivor role: Vocational trainer	(a) Charity (organization size not known) (b) Prison education department (organization size not known)	(a) Unknown (b) No, RTW deemed not possible by OH department
OT_06	OT/supervisor (VR specialist). Discussed two cases: (a) Stroke survivor role: Reception team lead (b) Stroke survivor role: Picker packer (night shifts)	(a) Car dealership (large organization) (b) Warehouse (organization size not known)	(a) Unknown (b) Attempted, stroke survivor had a conflict with agency worker on night shift. Suspended for 6 months.

[a]SS = Stroke Survivor; E = Employer; OT = Occupational Therapist.
[b]Abbreviations used: NHS = National Health Service; SME = small- or medium-sized enterprise; RTW = Return to work.

Table 4. Synthesized findings and convergence ratings, with environmental levels based on the disability prevention management model.[34]

Convergence rating	Barriers (data source/s)	Facilitators (data source/s)
Agreement (i.e. full agreement between datasets on meaning and sample demographic characteristics)	**Stroke survivors**: Non-disclosure due to fear of highlighting limitations to employer (review, interviews) **Employers**: Limited knowledge of legal obligations or organisational sick leave policies/procedures (review, survey, interviews). Fear of causing another stroke (review, interviews). Stressful balancing needs of stroke survivor with needs of co-workers (review, interviews) **Workplace system**: Co-workers frustrated when supporting stroke survivors for lengthy time periods (review, interviews). Health and safety concerns linked to stroke survivor returning to work environment (review, interviews). Lack of alternative roles when needed (review, interviews)	None identified
Partial agreement (i.e. agreement between datasets, but exact meaning or sample demographic characteristics differed)	**Employers**: Lacked knowledge about impact of stroke (review, interviews). Unsure about responding to challenging employee behaviours (review, survey) **Workplace and legislative, insurance and welfare systems**: Other stakeholders (e.g. insurance agents, managers) focusing on own agendas (leading to pressure for RTW[a] to happen quickly), or lack of perceived support (review, interviews) **Healthcare system**: Information regarding rehabilitative prognosis and stroke impact not always provided (review, interviews) **Global and local events**: Organisational re-structuring during sickness absence led to alternative roles for stroke survivors, or changes in procedures and staffing (review, interviews)	**Stroke survivors**: Sought own support (interviews); other times disclosure helpful for employer support (review, survey, interviews). RTW motivation linked to financial pressure (review, interviews) **Employers**: Commitment to supporting employees variable. Most committed employers from large organisations and/or with RTW experience (review, interviews). Helpful if employers skilled in increasing employees' confidence or hope that abilities will improve (review, interviews) **Workplace system**: Useful if policies and procedures provide information/advice on roles and responsibilities (review, interviews) **Healthcare system/Culture and politics**: Family members and health professionals helpful for providing information about stroke survivors' stroke and/or recovery process (review, interviews)
Silence (i.e. one dataset showed a finding, but others were silent on the finding)	**Stroke survivors**: Frustration and shock linked to diagnosis, residual limitations, and others' behaviours (interviews) **Employers**: Do not always know potential need to deal with challenging behaviours from stroke survivor (survey). Uncertain how to access information on stroke and disability management (review) **Legislative, insurance and welfare system**: Stroke survivors did not meet eligibility criteria for insurance pay-outs (interviews) **Healthcare system**: Long waits for stroke diagnoses or specialist referrals (interviews). High frequency of appointments disrupted working patterns upon RTW (interviews) **Culture and politics**: Family member or manager did not take stroke survivor's invisible impairments seriously (interviews) **Global and local events**: COVID-19 caused staffing issues, concerns about finances and RTW, and increased workload for employers (interviews) **Stroke survivor, employer, and workplace system**: Lack of communication across stakeholders (e.g. manager/OH[b] advisor and stroke survivor) (interviews)	**Employers**: RTW experience useful for understanding complexity/duration of RTW process (review) Leadership skills, employees' pre-injury skills, and online networks useful (review) **Legislative, insurance and welfare system**: Insurance considered necessary to offset productivity losses when employee off sick (review). Group income protection insurance policy ensured stroke survivor received compensation during long-term sickness absence (interviews)
Dissonance (i.e. Disagreement between datasets on meaning of finding and sample demographic characteristics)	**Employers**: Good stroke knowledge (survey), but knowledge deficits reported elsewhere (review and interviews)	

[a]RTW=return to work; [2]OH=occupational health.

provided in Supplementary file S6. Codes indicate managerial/HR officer (E), stroke survivor (SS), or clinical supervisor/occupational therapist (OT) viewpoints.

Employers' beliefs about stroke survivors' RTW capabilities were influenced by stroke survivors' residual limitations or the employer's knowledge and experience of stroke or the RTW process (SS_01, SS_02, E_04, E_07). Compassion and commitment for supporting stroke survivors was limited among employers with no RTW process experience (OT_03) or limited time availability (OT_06). Employers and stroke survivors did not understand stroke and its impact (SS_01, SS_02, E_04, OT_06). e.g. one HR manager/stroke survivor (SS_01) felt an OH advisor did not realize strokes occur and impact differently across individuals. The HR manager/stroke survivor felt that their symptoms were not investigated and their capabilities under-estimated, e.g. they were trusted with little work, thus hindering a sustainable RTW.

Awareness of limitations enabled stroke survivors in employer roles to advocate for OH support (SS_01), self-refer for therapy (SS_02, SS_05), seek insurance pay-outs (SS_01, SS_05), and alter working patterns (SS_02, SS_05). One HR officer (E_07) commended a stroke survivor's openness about their capabilities. Another stroke survivor reportedly feared communicating attentional issues to their manager and coworkers (OT_06). Consequently, they had a too-large workload and unsuitable work environment. This negatively impacted their energy levels and home life.

Various stakeholders influenced employers or stroke survivors. For example, a manager's honesty about her own transient ischemic attack helped the clinical supervisor/stroke survivor (SS_02) believe things would improve. Family members informed employers about the stroke (E_04, E_07). With stroke survivors' consent, health-care professionals provided information about their symptoms and medication, including when it was unsafe for them to return to the work environment (SS_02, SS_05, E_07). Conversely, a lack of communication from a stroke survivor employee and OH advisor caused stress and anxiety for a manager (E_04).

Contextual characteristics and resources also influenced employers' RTW support. These included the workplace environment and policies/procedures, health-care system (timing of stroke diagnoses and referrals), legislation/welfare and insurance policy pay-outs, and global and local events. For example, stroke survivors could not always return to previous roles, due to their disabilities and employers' concerns about health/safety and accessibility. Short staffing meant coworkers were unavailable to supervise or be shadowed or restricted flexibility with work schedules (OT_06). Organizational policies and procedures restricted when working hours could be changed (OT_06) and stipulated consultant sign-off for RTW (SS_02). At other times, policies and procedures helped a manager (E_04) and HR officer (E_07) know how to communicate with people on long-term sickness absence. Other useful aspects included guidance on risk assessments and phased RTW (SS_02, E_07), approved leave for health appointments (SS_02), and the option of part-time working hours (SS_02).

In the health-care system, it sometimes took months for stroke diagnoses to be confirmed. Frequent health appointments disrupted stroke survivors' working patterns (SS_02, SS_05). Others were referred for specialist support too late (SS_01, OT_06), or it was never arranged (SS_05). A business owner/stroke survivor (SS_05) felt abandoned because of their hidden disabilities, age, and health professional status. They struggled with aspects of their work and experienced low mood.

Employers (who were also stroke survivors) had personal insurance policies that had not resulted in pay-outs (SS_01; SS_05). One HR manager's stroke was not considered severe enough (SS_01). In this case, they were on the waiting list for work-related rehabilitation (i.e. VR) through the NHS. The only source of RTW support for them and their manager was from an OH provider with little knowledge of stroke (evident through their underestimation of their work abilities) (Supplementary file S6: Table 2, theme entitled, "Knowledge of stroke and potential impact"). A business owner/stroke survivor was required to be off sick for 12 weeks

to be eligible for a pay-out from income protection insurance (SS_05). This stroke survivor's (SS_05) need to run their business (without funded support) meant they could not put into place reasonable adjustments to support their return, e.g. reduced hours during a phased return. Elsewhere, an HR officer (E_07) found it helpful knowing a stroke survivor was receiving half-pay linked to an organizational insurance policy.

COVID-19 caused issues still experienced in the aftermath of the pandemic (which may affect employers' ability to provide reasonable adjustments), e.g. staffing issues and delays in health-care appointments (and thus information on rehabilitative prognosis) (SS_02, OT_03, E_04, SS_05). One business owner/stroke survivor's (SS_05) workload tripled and their phased RTW had to stop, because they had to spend time altering and adapting to new working practices (e.g. they [and employees] working with clients online instead of face-to-face). Visual fatigue and hearing loss made it difficult to work remotely online (SS_05) (Supplementary file S6, Table 2, theme entitled "Global and local events at the time of the RTW process."). Outside of COVID-19, events within organizations included changes to staffing, site, and procedure (OT_06).

3.3. Findings from the data synthesis

Synthesized findings across data sources are shown in Table 4. Qualitative data sources showed stroke knowledge deficits among employers, though survey stroke knowledge scores were high (dissonance). Across all data sources, employers lacked knowledge of responsibilities according to legislation and organizational policy/procedure (full agreement).

Full agreement was shown regarding employers' fear of causing another stroke, stress managing stroke survivors' needs versus coworkers' needs, coworkers' frustration supporting stroke survivors, health and safety concerns relating to stroke survivors' RTW, and lack of suitable, alternative roles within organizations.

4. Discussion

This study revealed factors that influenced employers' RTW support for stroke survivors (objectives 1–3). For example, at the individual level they included stroke survivors' decisions to disclose stroke-related limitations (all data sources), employers' knowledge regarding their roles and responsibilities (all data sources), and employers' communication skills (qualitative data sources). At the environmental level, an example was health-care professionals' provision of information to employers (qualitative data sources). In regression analyses, having HR/OH support, post-stroke RTW experience, and working in a larger organization were positively associated with stroke and/or RTW process knowledge scores (and post-stroke RTW experience with perceived competency scores) (objective 2 and 3).

This study's strengths lie in its diverse data collection methods and involvement of multiple reviewers, enhancing credibility and reducing risk of bias. It is the first mixed-methods study to explore employers' needs for providing post-stroke RTW support. Use of inferential statistics to explore relationships between employers' demographic characteristics and RTW knowledge/perceived competency is also novel. Furthermore, through integrating findings across datasets, it was identified: a) what content should be included in an RTW intervention for stroke survivors and employers, and b) which employers may need the intervention most.

One limitation is that, despite employing a broad "employer" definition, and multi-channel recruitment strategy over several months, the resulting interview and survey sample sizes were small. It is uncertain whether these results are generalizable/transferable. Another limitation related to dissonance in findings across the review/interviews and survey. For example, employers lacked stroke knowledge in the review/interviews, but survey median stroke knowledge scores were high. This may have been due to employers in the review/interviews lacking post-stroke RTW experience (50% of survey respondents reported having this experience). Adjusted survey regression analyses showed statistically significant positive association between post-stroke RTW experience and stroke

knowledge. In 2021, 37.5 million of the UK population were working-age,[35] and among these 0.007% experienced strokes.[36] Thus, UK-wide, the percentage of employers with post-stroke RTW experience is likely much smaller (and their stroke knowledge potentially more limited, etc.). Others have experienced unexplained issues engaging employers, e.g. managers, in research,[23] particularly those from SMEs and non-service sectors. In this study, these employers were recruited through business networking events or management staff meetings. Recruitment of employers for interviews was achieved through preexisting local relationships. Future employer engagement may prove more fruitful if funding applications include budgets and generous timelines for study advertisement and engagement. Recruitment efforts should be shared across team members and various strategies employed.

Across the review and interviews, stroke survivors feared highlighting limitations to employers. In interviews, these limitations were invisible (e.g. fatigue). Such individuals present an able-bodied appearance, yet can have restricted work capabilities. Disclosing such impairments may be met with disbelief, and explaining them can be difficult. Individuals with disabilities may also expect negative outcomes related to perceived public stigma[37] or dissimilarity to others[38] upon disclosing their social identities. In another qualitative study, stroke survivors considered it risky talking about their stroke at work, as others might consider it a weakness.[39] Stroke survivors may be encouraged to disclose needs if organizational cultures value understanding, trustworthiness, and supportiveness.[40]

Interview data showed that employers do not always communicate with stroke survivors. Others have reported employer anxiety, and not wanting to pressurize stroke survivors and risk potential litigation.[10] Review and interview data in this study showed that employers feared causing another stroke, negatively impacting work allocation. In another study ($n = 26{,}812$), psychosocial stress was associated with increased stroke risk.[41] However, a higher perceived sense of control weakened the association between stress and stroke occurrence.[41] Enabling stroke survivors to participate in planning and managing their RTW may reduce risks of psychosocial stress and recurrent stroke and alleviate employers' fears. Employers with these fears may also benefit from education on the causes of stroke and communication with stroke survivors.

The survey showed that RTW process knowledge scores (including knowledge of roles/responsibilities) were higher among employers in large organizations and/or with access to HR/OH support. Large organizations often have formal training programs in place, covering topics like workplace adjustments and legal obligations, and readily available support from OH services, e.g. to provide medical guidance regarding an employee's RTW. Large organizations also tend to have HR teams dedicated to developing and enforcing organization-wide RTW policies, and advising staff on roles and responsibilities. In this study, interviews showed that employers in SMEs mostly lacked knowledge of their roles/responsibilities and did not always have relevant policies in place. Both the survey and interviews' findings suggested that employers lacking post-stroke RTW experience had lower perceived competency for carrying out RTW actions. Elsewhere, employers have experienced uncertainty supporting breast cancer survivors with RTW, and linked this to a lack of experience, information, and training on providing such support.[42] Altogether, these findings suggest that employers in SMEs and those without HR/OH support may benefit from education on roles/responsibilities and support developing organizational policies.

Notably, employers received information about stroke survivors' rehabilitative progress/prognosis if they were receiving VR support, e.g. through the NHS. Review and interview data suggested this information facilitated employers' decisions regarding the RTW, e.g. whether it was safe for a stroke survivor to return to their pre-stroke working role. VR helps people to return to- and stay in work following injury or illness,[43] and depending on the individual's geographical location and context may (or may not be) available through various stakeholders and systems. Importance of communication across all relevant stakeholders is widely recognized in VR.[11] However, interview data and others[44] have

shown that employers do not always engage with VR professionals, due to limited time availability, lack of RTW experience, or belief that dismissal would be less costly than retainment. Organizations may benefit from education on the potential benefits of including VR among employee benefits. Strong evidence suggests improved communication across stakeholders is cost-effective and reduces sickness absence duration.[11]

Despite small sample sizes, high levels of statistical significance and corresponding qualitative findings suggest that employers from SMEs, with no access to HR/OH and no post-stroke RTW experience may benefit *most* from guidance in supporting stroke survivors. In the UK, the government is committed to minimizing ill health-related job loss, e.g. by improving OH provision for self-employed and SME employers, and providing employers with high-quality advice and information (e.g. sickness absence management).[45] This study's findings demonstrate the need for such work. In conclusion, this study provides triangulated evidence showing that SME employers with no access to HR/OH support or post-stroke RTW experience employers may benefit most from education and training to improve their post-stroke RTW support. Further research with more representative employer samples is needed.

Disclosure statement

The authors declare that they have no conflict of interest.

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Data availability statement

Anonymised data from this study may be shared for future research and teaching, subject to research ethics approval, and a data-sharing agreement. The data custodian, Professor Kathryn Radford, can be contacted for access requests at mczkar1@exmail.nottingham.ac.uk. The repository link already mentioned contains additional information, e.g., showing how the study was carried out (for example, the metadata labels used in the survey analyses): https://rdmc.nottingham.ac.uk/handle/internal/11028

References

1. World Health Organization (WHO). Stroke, Cerebrovascular accident [Internet]. Geneva: WHO; 2024. https://www.emro.who.int/health-topics/stroke-cerebrovascular-accident/index.html. Accessed September 16, 2024.
2. Kissela BM, Khoury JC, Broderick JP, Kleindorfer DO, Alwell K, Moomaw CJ. Age at stroke: temporal trends in stroke incidence in a large, biracial population. *Neurology*. 2012;79(17):1781–1787. doi:10.1212/WNL.0b013e318270401d.
3. Yahya T, Jilani MH, Khan SU, Mszar R, Hassan SZ, Blaha MJ. Stroke in young adults: current trends, opportunities for prevention and pathways forward. *Am J Prev Cardiol*. 2020;3:100085. doi:10.1016/j.ajpc.2020.100085.
4. Li L, Scott CA, Rothwell PM. Association of younger vs older ages with changes in incidence of stroke and other vascular events, 2002-2018. *JAMA*. 2022;328(6):563–574. doi:10.1001/jama.2022.12759.
5. Adamson J, Beswick A, Ebrahim S. Is stroke the most common cause of disability? *J Stroke Cerebrovasc Dis*. 2004;13(4):171–177. doi:10.1016/j.jstrokecerebrovasdis.2004.06.003.
6. Different Strokes. Life after stroke: causes, aftercare & what to expect [internet]. Milton Keynes, UK: Different Strokes. https://differentstrokes.co.uk/wp-content/uploads/2020/02/Life-after-Stroke.pdf. Accessed September 16, 2024.
7. Palstam A, Tornbom M, Sunnerhagen KS. Experiences of returning to work and maintaining work 7 to 8 years after a stroke: a qualitative interview study in Sweden. *BMJ Open*. 2018;8(7):e021182. doi:10.1136/bmjopen-2017-021182.
8. United Nations Department of Economic and Social Affairs. The concept of reasonable accommodation in selected national disability legislation [internet]. New York, NY: United Nations General Assembly; 2006. https://www.un.org/esa/socdev/enable/rights/ahc7bkgrndra.htm. Accessed September 16, 2024.
9. Business Disability Forum. Reasonable adjustments - what they are and why they are important [internet]. London: Business Disability Forum; 2022. https://busi

nessdisabilityforum.org.uk/knowledge-hub/resources/reasonable-adjustments-smes/#:~:text='Reasonable%20adjustments'%20are%20changes%20to,as%20workplace%20adjustments%20or%20accommodations. Accessed September 16, 2024.
10. Coole C, Radford K, Grant M, Terry J. Returning to work after stroke: perspectives of employer stakeholders, a qualitative study. *J Occup Rehabil*. 2013;23(3):406–418. doi:10.1007/s10926-012-9401-1.
11. Waddell G, Burton A, Kendall N. Vocational rehabilitation: what works, for whom, and when? [internet]. London: TSO (The Stationery Office); 2008. https://assets.publishing.service.gov.uk/media/5a7ccd8bed915d6b29fa8c2b/hwwb-vocational-rehabilitation.pdf. Accessed September 16, 2024.
12. Tindle A, Adams L, Kearney I, Hazel Z, Stroud S Understanding the provision of occupational health, and work-related musculoskeletal services. London, UK: Department for Work and Pensions (DWP)/Department of Health & Social Care (DHSC); 2020. DWP/DHSC research report no: 985.
13. Leary S, Hurford J, Shanahan N. An expert opinion: vocational rehabilitation after stroke. *Adv Clin Neurosci Rehabil*. 2020. doi:10.47795/keec8935.
14. Donker-Cools BHPM, Schouten MJE, Wind H, Frings-Dresen MHW. Return to work following acquired brain injury: the views of patients and employers. *Disabil Rehabil*. 2018;40(2):185–191. doi:10.1080/09638288.2016.1250118.
15. Nouri F, Coole C, Smyth G, Drummond A. The allied health professions health and work report and the fit note: perspectives of patients and stakeholders. *Br J Occup Ther*. 2021;84(2):72–78. doi:10.1177/0308022620948763.
16. Stroke Association. Lived experience of stroke. Chapter 2: the wider impact of stroke [Internet]. London, UK: Stroke Association; 2019. https://www.stroke.org.uk/lived-experience-of-stroke-report/chapter-2-wider-impacts-of-stroke. Accessed September 16, 2024.
17. Craven K. Return to work/job retention toolkit for employers and stroke survivors [internet]. Leicester, UK: National Institute for Health and Care Research Applied Research Collaboration East Midlands; 2024. https://arc-em.nihr.ac.uk/research/explore-our-research/return-workjob-retention-toolkit-employers-and-stroke-survivors. Accessed September 16, 2024.
18. Bartholomew-Eldridge L, Markham C, Ruiter R, Fernández M, Kok GP. *Planning Health Promotion Programs: An Intervention Mapping Approach*. 4th ed. San Francisco, CA: Jossey-Bass; 2016.
19. Craven K, Dios Pérez B D, Holmes J, Fisher R, Radford KA. Factors influencing employers' support for employees with acquired brain injuries or mental illness to return to- and stay in work: a qualitative systematic review. *Work*. 2024;79(1):93–121. doi:10.3233/WOR-230214.
20. Creswell JW. Chapter 10: mixed methods procedures. In: Creswell JW, editor. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 3rd ed. Thousand Oaks, CA: SAGE Publications, Inc; 2009: 203–225.
21. Farmer T, Robinson K, Elliott SJ, Eyles J. Developing and implementing a triangulation protocol for qualitative health research. *Qual Health Res*. 2006;16(3):377–394. doi:10.1177/1049732305285708.
22. Erik von E, Douglas GA, Matthias E, Stuart JP, Peter CG, Jan PV. Strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ*. 2007;335(7624):806–888. doi:10.1136/bmj.39335.541782.AD.
23. Coole C, Nouri F, Narayanasamy M, Baker P, Khan S, Drummond A. Engaging workplace representatives in research: what recruitment strategies work best? *Occup Med*. 2018;68(4):282–285. doi:10.1093/occmed/kqy047.
24. Hemming S, McDermott H, Munir F, Burton K. Employer perspectives concerning the self-management support needs of workers with long-term health conditions. *Int J Workplace Health Manag*. 2021;14(4):440–458. doi:10.1108/IJWHM-02-2021-0030.
25. Clarke V, Braun V. *Successful Qualitative Research: A Practical Guide for Beginners*. Los Angeles, CA: SAGE; 2013.
26. Atkins L, Francis J, Islam R, O'Connor D, Patey A, Ivers N, et al. A guide to using the theoretical domains framework of behaviour change to investigate implementation problems. *Implementation Sci*. 2017;12(1):77. doi:10.1186/s13012-017-0605-9.
27. Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation Sci*. 2012;7(1):37. doi:10.1186/1748-5908-7-37.
28. IBM Corporation. *IBM SPSS Statistics for Macintosh, Version 28.0*. Armonk, NY: IBM Corp; 2021.
29. StataCorp. *Stata Statistical Software: Release 17*. College Station, TX: StataCorp LLC; 2021.
30. Mann HB, Whitney DR. On a test of whether one of two random variables is stochastically larger than the other. *Ann Math Stat*. 1947;18(1):50–60. http://www.jstor.org/stable/2236101.
31. Hannerz H, Ferm L, Poulsen OM, Pedersen BH, Andersen LL. Enterprise size and return to work after stroke. *J Occup Rehabil*. 2012;22(4):456–461. doi:10.1007/s10926-012-9367-z.
32. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol*. 2013;13(1):117. doi:10.1186/1471-2288-13-117.

33. QSR International. *NVivo Qualitative Data Analysis Software, Version 12*. Burlington, MA: QSR International; 2018.
34. Loisel P, Durand M, Berthelette D, Vézina N, Baril R, Gagnon D. Disability prevention: new paradigm for the management of occupational back pain. *Disease Manag Health Outcomes*. 2001;9(7):351–360. doi:10.2165/00115677-200109070-00001.
35. GOV.UK. Working age population 2023 [internet]. London: GOV.UK; 2024. https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/demographics/working-age-population/latest/#:~:text=according%20to%20the%202021%20Census%2C%2062.9%25%20(37.5%20million),aged%2016%20to%2064%20years. Accessed September 16, 2024.
36. British Heart Foundation. UK Factsheet. London: British Heart Foundation; January, 2024. https://www.bhf.org.uk/-/media/files/for-professionals/research/heart-statistics/bhf-cvd-statistics-uk-factsheet.pdf. [Internet]. Accessed September 16, 2024.
37. Goffman E. *Stigma: Notes on the Management of Spoiled Identity*. New York, NY: Touchstone; 1986.
38. Tajfel H. *Social Identity and Intergroup Relations*. New York, NY: Cambridge University Press; 2010.
39. Wassenius C, Claesson L, Blomstrand C, Jood K, Carlsson G. The centrality of work in everyday life after stroke: a qualitative study of long-term stroke survivors. *Scand J Occup Ther*. 2023;30(4):539–549. doi:10.1080/11038128.2023.2170914.
40. Li J-Y, Lee Y. To disclose or not? Understanding employees' uncertainty and behavior regarding health disclosure in the workplace: a modified socioecological approach. *Int J Bus Commun*. 2023;60(1):173–201. doi:10.1177/2329488420911135.
41. Reddin C, Murphy R, Hankey GJ, Judge C, Xavier D, Rosengren A, et al. Association of psychosocial stress with risk of acute stroke. *JAMA Netw Open*. 2022;5(12):e2244836. doi:10.1001/jamanetworkopen.2022.44836.
42. Bilodeau K, Gouin M-M, Fadhlaoui A, Porro B. Supporting the return to work of breast cancer survivors: perspectives from Canadian employer representatives. *J Cancer Surviv*. 2023;18(4):1–9. doi:10.1007/s11764-023-01382-5.
43. Vocational rehabilitation association UK (VRA UK). Written evidence from the vocational rehabilitation association (DEG0111). *Internet*. Surrey, UK; VRA UK; 2020. https://committees.parliament.uk/writtenevidence/19153/pdf/. Accessed September 16, 2024.
44. Ramano E, Buys T, De Beer M. Formulating a return-to-work decision for employees with major depressive disorders: occupational therapists' experiences. *Afr J Prim Health Care Fam Med*. 2016;8(2):e1–5. doi:10.4102/phcfm.v8i2.954.
45. Department for Work and Pensions (DWP)/ Department of Health and Social Care (DHSC) [Internet]. Health is everyone's business: government response to the consultation on proposals to reduce ill-health related job loss. London, UK: DWP/DHSC; 2019. https://www.gov.uk/government/consultations/health-is-everyones-business-proposals-to-reduce-ill-health-related-job-loss/outcome/a31ca5a9-b01f-493c-8c63-aae46356dfa3. Updated October 4, 2021. Accessed September 16, 2024.