**Assessing the psychosocial impact of stammering on work**

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**What is already known about this subject:**

* + Stammering (stuttering) affects an estimated one percent of adults with a higher prevalence among males. In light of the chronicity of the condition, workers who stammer tend to self-select into job roles which involve less verbally demanding tasks in order to limit the potential for negative experiences in the workplace.
	+ While research into the impact of stammering at work is limited, the literature consistently shows it can limit career progression, impede job performance and affect mental health. No empirical research has been undertaken exploring the role of occupational health (OH) when supporting workers who experience workplace difficulties due to stammering.
	+ Exploratory work was needed to better understand the work experiences of healthcare workers who stammer and scope out the need and requirements for a workplace staff support intervention.

**What this study adds:**

* + These findings provide new knowledge and insights regarding some of the practical challenges healthcare workers who stammer face during their working lives
	+ This work extends the existing OH research base by providing new knowledge and understanding of the role of OH in the management of staff who experience work difficulties due to stammering or other speech disorders.
	+ This exploratory research reinforces the need for more OH research focused on exploring the impact of hidden conditions and disability on work.

**What impact this may have on practice or policy:**

* There is a need to improve OH clinicians’ clinical knowledge of stammering (and

 other speech disorders) and their impact on work

* + More effort is needed to promote the role of OH in supporting workers who experience workplace difficulties due speech disorders and in ensuring OH clinicians are cognisant of appropriate workplace adjustments for these conditions.
	+ Findings informed the creation of the national NHS Employee Stammering Network, comprising specially trained workplace peer mentors (representing different professional backgrounds i.e. medical, allied health, administration) and a dedicated website for staff, managers and OH to access information and practical advice. For details can be found at www. nhsstammeringnetwork.uk

**Abstract**

**Background**

Stammering (stuttering) is a speech condition with high heterogeneity, affecting approximately one percent of adults. Research shows it can limit career progression, impact job performance and quality of life.

**Aims**

To assess the psychosocial impact of stammering among healthcare workers and to develop a new workplace support intervention.

**Methods**

A cross-sectional questionnaire of healthcare workers who stammer with qualitative work and a survey of OH usual care to assess the need for a workplace intervention.

**Results**

Data from 470 staff questionnaires and 32 OH clinicians were analysed. Eighty four percent rated their stammering severity as mild-to-moderate, with the majority reporting adverse impact on job performance and career progression. Most experienced a high degree of anxiety and embarrassment at work, with avoidance behaviours commonplace. Four percent of respondents sought OH advice for work difficulties. Qualitative data highlighted practical challenges staff experience in the workplace. Sixty five percent supported the proposal for a new workplace intervention.

We found workplace stress and anxiety were the most common reasons for OH referrals, and we found wide variation in the scope of OH assessments and work adjustments recommended. Most OH respondents reported insufficient clinical knowledge of speech disorders and their impact on work.

**Conclusions**

Stammering can have a negative impact of workers’ job performance and job satisfaction. This can precipitate feelings of stress and anxiety and can affect self-identity at work. We found wide variation in the provision of OH usual care. The results informed the development of a new workplace intervention.

**Key words:** stammering, stuttering, speech disorders, work, workplace intervention, occupational health

**Introduction**

Approximately one percent of the adult population stammers (stutters), a ratio of 4:1 males vs females. (1) Stammering presents as difficulty with the smooth forward flow of speech. A person who stammers (PWS) may present with different stammering behaviours, including repetitions of syllables, blocks on certain sounds and extraneous behaviours/ extra sounds (*‘um, um, um’)* or prolonged eye-blinking (2). The aetiology of stammering is not yet established but increasing evidence suggests it’s a neurobiologically driven speech-motor disorder. (1, 3, 4) For many PWS, discomfort from difficulty speaking, together with negative reactions by listeners complicates communication interaction. Although stammering isn’t causedby anxiety/stress, people tend to stammer more when stressed/anxious and avoidance behaviours are comomplace. (5-8)

Whilst research in stammering at work is scant, studies involving participants in non-healthcare job roles show it can influence job performance and job satisfaction, and limit career progression. (9-13) This can erode self-confidence and self-esteem and can impact professional self-identity through concerns about presenting oneself in an unprofessional or incompetent manner. (9-11) Despite these negative experiences, a study in Japan exploring public attitudes towards workers who stammer found that knowing a PWS was associated with positive attitudes and impressions of PWS at work. (14)

Verbal communication is integral to the delivery of clinical practice for healthcare roles and this can present unique communication challenges for healthcare workers who stammer. While some may find disclosure helps to reduce the pressure to achieve fluency, others are ambivalent to do so citing concerns that it may impact career progression. Unlike other employment sectors, workers employed in the National Health Service (NHS) in the UK often have better access to occupational health (OH) advice and support. (15) Despite this, no previous research exploring the role OH in the management of workers with speech disorders exists.

. The following questions were explored on this study:

1. What is the impact of stammering on job performance, job satisfaction and quality of life among staff who stammer?

2. What is the level of need for a national NHS Stammering Network and what features would a network comprise of?

3. What is the current OH usual care practice for staff who experience work difficulties due to stammering?

**Methods**

This work comprised a questionnaire of NHS staff who stammer with qualitative work (phase 1) and an OH usual care survey (phase 2). To answer questions 1 and 2 a questionnaire was developed comprising three areas of interest (i) demographics, (ii) impact of stammering on work, anxiety, embarrassment and professional projection and quality of work-life , and (iii) what additional resources or support at work would be most useful. We hosted three virtual focus groups to seek further in-depth feedback. To answer question 3, a questionnaire was developed in consultation with senior OH clinicians. In both surveys, participants were provided with opportunities to contribute free-text data, including describing their experiences of stammering in the workplace.

The tools were developed with stakeholder input (OH clinicians, NHS workers who stammer and a representative from the British Stammering Association) and piloted before they were administered. The online surveys remained opened from 13 February 2020 - 31 August 2020.

We used a convenience sampling frame.. For phase 1, we sent a link to the questionnaire to all NHS organisations requesting they advertise this locally. For phase 2, a link to the online OH survey was administered via existing NHS OH networks and OH departments previously contributing to OH research. The staff questionnaire was promoted at 152/383 (40%) NHS (and partner e.g. Royal Colleges) organisations, with five organisations declining to advertise (citing too many surveys at present) and the rest 226 (59%) did not respond either way.

Descriptive analysis was conducted and the results presented as frequencies and proportions of allresponses. We used Poisson regression models with robust variance to examine the effect of stammering severity on three specific outcomes variables: i) feelings of anxiety, ii) feelings of embarrassment and iii) feeling unprofessional or professionally incompetency. Effect estimates were summarised by relative risks (RR). All regression models were adjusted for age (10-year age bands), sex, job role, years working in the NHS and history of speech therapy. Since we did not capture data on which NHS organisation respondents were employed at, it was not possible to conduct a multilevel Poisson regression analysis that would allow us to account for the potential clustering effect by organisational level. Qualitative data was analysed using thematic analysis as a guide only although we stopped short of producing overarching themes because our focus was on addressing our core research questions (16).

The project was registered as a service evaluation activity following advice from the NHS Health Research Authority (HRA).

**Results**

We received 476 completed staff questionnaires, six questionnaires were excluded for ineligibility. The characteristics of the 470 questionnaires included in the analysis are described in Table 1.

INSERT TABLE 1

Figure 1 presents participants’ answers on how stammering impacts different work domains. Key findings showed the vast majority (86%) of respondents perceived their job performance was adversely impacted by varying degrees because of stammering, with most reporting it had an overall ‘slight’ to ‘moderate’ impact on work. Conversely, only 13% felt their job performance was not adversely impacted. Two-thirds (67%) of respondents considered their job performance would improve if they didn’t stammer. Similarly, roughly the same proportion (66%) reported that they engaged in avoidant behaviours to minimise exposure to stressful speaking situations, with over half (55%) also engaging in compensatory behaviours i.e. putting more effort into other areas of work. While a noteworthy proportion of respondents reported that their stammer had influenced their decision not to take on new work responsibilities, a quarter (24%) still felt they had job tasks taken away from them because of their condition. Furthermore, over a third (36%) of respondents felt their stammer had influenced their decisions not to pursue promotional opportunities, while a quarter (26%) claimed their stammer had influenced their progression to senior roles. Less than a quarter (16%) felt their stammer had adversely impacted clinical aspects of their role.

**Figure 1: Impact of stammering on job performance and job satisfaction**

Half (50%) of respondents disclosed their stammer to others and mostly to peers and colleagues (87%) or managers (64%) and to a lesser extent to patients/carers (18%) or members of the public (8%). Factors that influencing non-disclosure decisions included feeling embarrassed or ashamed of stammering and concerns that it may be viewed negatively by others.

We found only nineteen (4%) respondents reported having sought OH advice for workplace difficulties caused from stammering, of which only five respondents found OH advice useful. Four staff were offered specific work adjustments e.g extra preparation time for meetings; use of the telephone in private settings, or not using the telephone at all. Conversely, some staff viewed the involvement of OH less favourably, reporting that OH were either unable to offer any useful advice and adjustments *(“did not seem to know what to do”*) or was told that stammering was not a condition OH dealt with.

While 168 (38%) respondents did not feel it necessary to seek OH advice, approximately half (42%) were not even aware that this was available to them. Some also expressed reluctance to discuss their workplace difficulties with their OH team in case it had negative consequences on their job role or because their condition and workplace difficulties wouldn’t be taken seriously. Others did not want it documented in their record.

We assessed the impact of stammering on quality of life at work across different domains, including mental health, work self-identity, self-confidence, workplace support, discrimination, bullying and harassment (fig 2).

**Figure 2: Impact of stammering on quality of life at work**

Of particular note, we found most respondents experienced a range of strong emotional reactions due to their stammer. Most common, the majority (82%) of respondents felt anxious at work from stammering, with similar proportions feeling embarrassed and ashamed when stammering occurs. Feeling unprofessional or incompetent at work because of speaking with a stammer was commonplace. We further explored the effect of severity of stammering on each of these emotional reactions, responses of which were dichotomised as “Neither/Nor – Disagree – Strongly disagree” vs “Strongly agree - Agree”.

**INSERT Table 2**

From the regression analysis, we found respondents who rated their stammer as ‘mild’-to-‘At least moderately severe’ had between a 30-50% increased risk of experiencing anxiety at work compared to those who rated the severity of their stammer as less than mild (‘Not at all severe’). Effect estimates were somewhat higher among males than among female counterparts. Similarly, we found both male and female respondents who rated the severity of their stammer as ‘mild’-to-‘At least moderately severe’ had between a 30-60% increased risk of possessing the self-belief that their stammering made them appear unprofessional or incompetent in the workplace compared to those who rated their stammer as less than mild. Furthermore, the statistically significant results (as shown in bold in Table 2) observed across many of the categories provides convincing evidence that there is indeed an elevated risk of experiencing higher ratings of feeling anxious and feeling unprofessional or incompetent at work due to stammering even when among those workers who rated their stammer at the mild end of the severity spectrum.

Personal testimonies from the participants’ surveys (free-text field) illustrate some practical realities of managing a stammer at work:

Speaking up and communicating in ***specific situations (such as clinical discussions, group meetings, telephone work)*** were highlighted as areas where stammering becomes more burdensome:

*I often struggle to impart information to patients because of my stammer. I use words that I don’t find difficult to say which can often make it sound like I don’t know the scientific detail of a condition.*

Despite being professionally trained health professionals, a consistent frustration and concern shared by respondents was ***the perceived impact stammering can have on the perception (from self or others) of their professional competency and capability*** *:*

*I feel I have two roles at work - doing my job and managing my stammer which can be exhausting and demoralising. My stammer is not as severe as others I have witnessed but its impact is high because I view it as a personal incompetency despite challenging my perception of this over the years.*

One of the most compelling issues faced by respondents was dealing with ***anticipatory anxiety (a fear of stammering in certain future situations)*** at work:

*…I would definitely say answering the phone and speaking up in meetings cause me great anxiety. Any negative speaking performance on my part will stay with me for a long time and I constantly worry about upcoming presentations or group discussions*

For some, this manifested itself in ***avoidance behaviours to minimise exposure to difficult speaking situations at work***:

*…at stressful times, knowing the increased risk of stammering, means I will not attend meetings, complete phone calls and rely more on colleagues to complete these pieces of work.*

For some, being more open about their stammer represented a positive step forward and provided an important foundation in which to build confidence and self-esteem:

*I'm a Head of Service and discuss my stammer openly, which is an enormous help. As I'm in a*

*leadership role, communication is key and my stammer creates significant daily pressure for*

*me but more internally than externally impacting on my performance.*

We found ***stammering presented different challenges at different stages of respondent’s working life***. For some, stammering was more bothersome during their early formative years (at university, during clinical exams and placements), whereas others found it had a significant influence on their willingness to pursue career aspirations in later working life:

*some situations are fine such as giving a presentation but others trigger stammering such as*

*unfamiliar meetings and rounds of introductions, this hasn't affected my clinical work and as a*

*specialist consultant am fluent with voice recognition systems but has affected my willingness to take on managerial roles as that triggers the stammer*

Thirty-two OH professionals from 29/113 (26%) NHS OH providers contributed to the usual care survey. In any previous period, eight staff had been referred to their OH department for advice on how to manage work difficulties arising from stammering. The most common referral reasons were situational stress and anxiety e.g. telephone use, , clinical exams or , delivering presentations. We found most (97%) OH appointments would be conducted face-to-face and by an OH-qualified professional (usually an OH nurse), with wide variation in the components of the initial OH assessment and the range of work adjustments recommended. For example, less than three quarters of OH assessments would ‘always’ include an assessment of the severity of the stammering or patients’ past history of stammering despite this being the main reason for OH referral. Furthermore, not all OH assessments would include a broader assessment of workplace difficulties staff may experience due to their stammer, suggesting OH assessments have a tendency to focus on the presenting problem only. Despite this, the majority of OH assessments would always or usually take on a problem-solving and goal-setting focus. Less than half (38%) of OH assessments would ‘always’ or ‘usually’ administer validated health screening tools (GAD-7 and PHQ-9) to assess the psychological impact of stammering on health, yet the majority of consultations would ‘always’ or ‘usually’ include screening for possible risks of harm to self.

Approximately half of OH providers considered their OH clinicians were unlikely to possess sufficient clinical knowledge of speech disorders and their impact on work, with the majority (90%) expressing a desire for more knowledge. Over half (69%) supported the proposal to establish a national NHS Employee Stammering Network.

**Discussion**

The majority of staff respondents reported an adverse impact on job performance and job satisfaction due to stammering which for some, had impacted their career progression. Furthermore, the majority of respondents’ experienced strong emotional reactions impacting professional self-identity and eroding self-confidence at work. Stammering also influenced avoidance behaviours as a means to minimise exposure to stressful speaking situations. For some participants, the sudden transition to home working during the Covid-19 pandemic, particularly, the reliance on virtual meeting platforms created additional stressors when managing a stammer in the (virtual) workplace. While there is a dearth of research examining the role of OH in the management of PWS, several aspects from the present work are of particular interest. We observed a very low rate of OH referral activity for this condition type despite the workplace challenges highlighted reported and the wider access to NHS OH services for healthcare workers compared to workers in other employment sectors.

While we acknowledge workers who stammer are likely to have a diverse range of experiences at work due to stammering (from no difficulties to significant work limitations), we nevertheless found a large proportion of staff respondents were unaware that OH support was available when problems arose. Moreover, it was interesting to note that some staff respondents were reluctant to engage in help-seeking behaviours citing concerns that their stammer would not be taken seriously by their OH department. This was illustrated by several respondents who reported a poor level of service when OH were engaged. In this regard, it is important that OH clinicians have the capacity to provide specialist OH advice and guidance particularly on work adjustments for all disabilities, including speech disorders, with may be supplemented with onward referral to speech and language therapy for treatment or signposting to staff support services such as the NHS Employee Stammering Network. OH clinicians are also encouraged to access practical information on stammering and work-related issues from the Network’s website to enhance their clinical practice. See <https://nhsstammeringnetwork.uk/>

A particular strength is that this was the first exploratory work exploring the impact of stammering among healthcare workers and the OH usual care. Several limitations are acknowledged. Our convenience sampling approach means the findings are prone to selection bias and therefore may not be fully representative of all healthcare workers who stammer or all NHS OH services. The unique nature of the healthcare setting coupled with the clinical interactions in which healthcare workers who stammer frequently engage in (i.e. discussions of a sensitive nature with patients) suggests aspects of their workplace experiences are unlikely to be generalizable to other worker groups. We also used a non-validated questionnaire and relied on self-report feedback.

Overall our findings were highly congruent with previous stammering research, particularly regarding most respondents self-reporting mild (as opposed to severe) stammering severity and the psychosocial reactions which point towards heightened anxiety and the avoidance behaviours.(4) Additionally, our findings are consistent with existing albeit limited stammering research focussed on the workplace which has shown thatstammering can play a major role in a person’s experience of work. (9-11) Although it’s important to note that in the present work we found the majority of respondents considered their job performance had been adversely impacted because of stammering (slight to significant impact), this was in contrast to the lower proportion of respondents who held this view in Klein’s (11) earlier work. Moreover, both surveys found a comparatively high proportion of respondents who considered stammering had directly impacted career progression. Similarly, approximately half of respondents in both surveys held the belief that their job performance would be improved if they did not stammer. While there are similarities in both populations regarding the high proportion of respondents in professional roles, a notable difference is that participants in Klein’s study were all engaged with stammering support groups whereas in the present work only half of respondents had previously received speech therapy treatment and a lower proportion had engaged with stammering support groups. The adverse influence on one’s work identity and concerns about the negative appraisal of others were prominent concerns. Consequently, we found some staff made career-limiting decisions not to pursue senior clinical and management roles within the NHS. This was highlighted by Klein (11) who found that workers who stammer will typically self-select into job roles which are less verbally demanding.

The results from this exploratory work were used to inform the establishment of a national staff support initiative for healthcare workers who stammer.

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**Competing interests**

None to declare

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**Table 1: Characteristics of respondents (%)**

|  |  |  |
| --- | --- | --- |
| Age | 20-29 | 106 (23) |
| 30-39 | 109 (23) |
| 40-49 | 121 (26) |
| 50-59 | 106 (23) |
| 60+ | 28 (6) |
| Sex | Female | 268 (57) |
| Male  | 198 (42) |
| Other | 2 (0) |
| Prefer not to say | 2 (0) |
| Job role | Non-clinical | 183 (39) |
| Nursing | 124 (26) |
| Medical/Dental | 39 (8) |
| Allied health | 91 (19) |
| Other | 33 (7) |
| Years of NHS service | >10 | 231 (49) |
| 6-9 | 77 (16) |
| 1-5  | 132 (28) |
| <1 | 29 (6) |
| No response | 1 (0) |
| Self-assessed severity of stammering | Not at all severe | 58 (12) |
| Mild | 229 (49) |
| Moderate | 164 (35) |
| Severe | 17 (4) |
| Very severe | 2 (0) |
| Ever had speech therapy | Yes | 246 (52) |
| No | 224 (48) |

**Figure 1: Impact of stammering on job performance and job satisfaction**



**Figure 2: Impact of stammering on quality of life at work**

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**Table 2: Effect of self-assessed severity of stammering on feeling anxious, embarrassed/ashamed, and unprofessional or incompetent at work**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Feeling anxious** | **Feeling embarrassed/ashamed** | **Feeling unprofessional or incompetent** |
| **Self-assessed severity of stammering** | **No** | **Yes** | **RRs (95% CIs)** | **No** | **Yes** | **RRs (95% CIs)** | **No** | **Yes** | **RRs (95% CIs)** |
| **All (male/female)** |  |  |  |  |  |  |  |  |  |
| Not at all severe | 22(37.9) | 36(62.1) | Reference category | 22(37.9) | 36(62.1) | Reference category | 25(43.1) | 33(56.9) | Reference category |
| Mild | 46(20.1) | 183(79.9) | **1.3 (1.1,1.6)\*\*** | 61(26.6) | 168(73.4) | 1.2 (1.0,1.5) | 57(24.9) | 172(75.1) | **1.3 (1.1,1.7)\*** |
| At least moderately severe | 16(8.7) | 167(91.3) | **1.5 (1.2,1.8)\*\*** | 29(15.8) | 154(84.2) | **1.4 (1.1,1.7)\*\*** | 27(14.8) | 156(85.2) | **1.6 (1.2,2.0)\*\*** |

All RRs were adjusted for prior speech therapy support/treatment for stammer, sex, age, job role, and years working in NHS. . \* p<0.05 \*\* p<0.01