**TITLE**

Experiences of GP trainees in undertaking telephone consultations: a mixed methods study.

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**ABSTRACT**

**Background**

Primary care telephone consultations are increasingly used for patient triage, reviews and providing clinical information, and are a key postgraduate training component; yet little is known about GP trainees’ preparation for, or experiences and perceptions of them.

**Aim**

To understand the experiences, perceptions and training of GP trainees in conducting telephone consultations.

**Design and Setting**

A mixed methods study of North Central and East London GP trainees.

**Methods**

A cross-sectional electronic survey of trainees was performed with subsequent semi-structured interviews. Survey data were analysed using descriptive statistics, and qualitative data using thematic analysis.

**Results**

The survey response was 16% (100/618), and 10 participated in semi-structured interviews. Trainees felt least confident with complicated telephone consulting, and there was a strong positive correlation between the percentage reporting to have received training and their confidence (R2=0.71, p<0.0001). Positive experiences included managing workload and convenience. Negative experiences included complex encounters, communication barriers and absence of examination. Trainees reported that training for telephone consultations needed strengthening, and recently introduced audio-clinical observation tools were useful. Positive correlations were found between the length of out-of-hours (but not in-hours) training and the level of supervision or feedback received for telephone consultations.

**Conclusion**

This project has shed light on GP trainees’ current experiences of telephone consultations and the need to enhance future training. Our findings will inform a wider debate amongst various stakeholders and postgraduate learners regarding training for telephone consultations and potentially for other remote technologies.

**Keywords**

General Practice; Telephone Consultations; Education; Quantitative Evaluation; Qualitative Research

Abstract Word Count: 249 words

**KEYWORDS**

General Practice; Remote Consultation; Telephone Consultations; Education; Quantitative Evaluation; Qualitative Research

**HOW THIS FITS IN**

Telephone consultations are a vital component in primary care for daily triage, patient reviews and providing clinical information. However, little is known about GP trainees’ experiences and perceptions of telephone consulting. This project has shed light on the experience of GP trainees in conducting telephone consultations, their current learning, feedback and assessment practices which need to be strengthened, and will inform postgraduate training for both telephone consultations and the use of other remote technologies in primary care.

**INTRODUCTION**

Tele-healthcare, or “the provision of personalised healthcare over a distance” involves patients transferring data electronically to a clinician, who uses it to develop a personalised management plan1. Telephone consultations are an early example of real-time tele-healthcare and can improve patient access and convenience, without compromising patient satisfaction2 3. Significantly increasing over the last decade, they now account for up to a quarter of all UK primary care consultations, covering many clinical activities1 2 4. Telephone consultations and technology will play increasingly integral roles in transforming healthcare, allowing faster triage and better access to help meet population demands5. Recent primary care policy initiatives place significant emphasis on digital technology to improve access and convenience for advice and care, including through telephone consultations6 7.

A recent Cochrane review of interventions to improve clinicians’ telephone consultation skills concluded that, telephone communication with patients was generally of low quality, with specific training lacking within undergraduate and postgraduate curricula8. Whilst telephone consulting is included within the Royal College of General Practitioners (RCGP) curriculum under several core competencies, including “communication and consultation” and “community orientation” domains9, there are concerns that with telephone consultations, general practitioners (GPs) may feel under-skilled and lack the ability to react to non-verbal cues, perform examinations and manage ethical/medico-legal challenges10. Telephone consultations may adversely affect patient safety, due to less data gathering and rapport building than face-to-face consultations, and they may not reduce workload3 11.

There is therefore a growing call for further professional development in delivering telephone consultations, in order to improve quality and to guide changes in undergraduate and postgraduate training12. Greater understanding of the views and experiences of GPs in training, those responsible for shaping and delivering future primary care is needed, particularly in terms of their training needs, curricular requirements and their confidence in handling telephone consultations. The main research question of this study is therefore: ‘What are the current experiences of GP trainees in conducting telephone consultations with patients?’

**METHODS**

**Study Design**

The design of this mixed methods study was an initial cross-sectional electronic survey of London GP trainees, followed by qualitative semi-structured telephone interviews, allowing for deeper exploration of themes13 14. An electronic questionnaire using an online survey tool (©LimeSurvey) was sent to all 618 GP trainees in North Central and East London (NCEL), between February and April 2018. Responders who agreed to participate in a semi-structured interview were contacted between May and October 2018.

**Questionnaire and semi-structured interview development**

The purpose of the questionnaire and semi-structured interviews was to gain an understanding of GP trainees’ perceptions and experiences of telephone consultations, taking account of the range and contexts of their individual training environments. The questions developed were based on reviewing and gaps identified in the literature, gaps in knowledge and the project’s research objectives. A list of essential skills for telephone consultations were considered, based on the current evidence available12 15, and further questions relating to confidence, positive or negative experiences, and in-hours versus out-of-hours (OOH) practice were developed. There were also questions on demographic details and training information, and space for individual comments. The questionnaire was divided into seven sections, composed of 30 short questions, and a 5-point Likert scale was utilised to measure the degree of confidence or agreement to statements. A focus group composed of five qualified GPs (two of whom were qualified GP trainers) and three GP trainees helped in designing, refining and finalising both the questionnaire and the semi-structured schedule. Questionnaire findings were later fed into the further development of the interview schedule, allowing the semi-structured interviews to probe deeper and make further sense of questionnaire responses. The questionnaire and semi-structured interview schedule are provided in Supplementary Files A and B.

**Study Setting and Participants**

The initial proposal was to survey a random sample of all GP trainees in London. Health Education England (HEE) Research Governance Group approved data collection from HEE North Central and East London (NCEL). The resulting sample population, at survey commencement (February 2018), was all GP trainees in NCEL London, at any stage of their specialist GP training at one of the 11 NCEL vocational training schemes (VTS). There were no exclusion criteria. The study context incorporated London-based training, including urban and less urban areas. GP trainee consent was implied by return of the electronic questionnaire. Using convenience sampling, trainees who completed the questionnaire and agreed to be contacted for a semi-structured interview were invited to complete a written consent form and participate in an interview.

**Questionnaire Data Collection and Analysis**

GP trainees were invited to complete the questionnaire through an initial email approach, four e-mail reminders and also by announcements from the programme directors at weekly training.

Levels of confidence for questions were scored of 1 to 5 (1 signifying ‘strong disagreement’, 3 signifying ‘neither agreement nor disagreement’, and 5 signifying ‘strong agreement’). The software ©GraphPad Prism6 was used for statistical analyses. Comparisons were made between mean scores at different stages of training using the Mann-Whitney U-Test. Linear regression was used to determine correlations between confidence of trainees to work independently and prior training received, across different aspects of telephone consultations. Correlations were also sought using Spearman r correlations between time spent in-hours and OOH with i) overall confidence in telephone consultations; ii) satisfaction with supervision received; and iii) satisfaction with feedback received.

**Semi-Structured Interview Data Collection and Thematic Analysis**

Semi-structured interviews were conducted by UC by either telephone or face-to-face, and audio-recorded. They commenced with an introduction and brief study outline. Interviews were roughly 30 minutes each and recordings were transcribed and anonymised. Analysis was undertaken using thematic analysis, following Braun and Clarke’s method, which involved identifying, examining and coding patterns of responses into categories16-18. The software ©NVivo12 was used to aid transcript coding and formulating categories. Data collection and analysis were performed concurrently, allowing questions to be modified and themes tested in subsequent interviews. TF reviewed the themes for coherence and relevance.

Results from the questionnaire survey and semi-structured interviews are presented in parallel, and analyses of both mixed method components were synthesized to form conclusions in relation to the overall aim.

**RESULTS**

The questionnaire response rate was 16.2% (100/618). 75% (75/100) of the responders were female, and a range of age groups, practice size and stage of training was covered from both NC and NE groups (**Table 1**). Seventeen responders provided contact details to participate in the semi-structured interviews, of whom ten ultimately agreed to be interviewed; they were at different stages of training and from both NC and NE regions (**Table 1**). Eight interviews were initially conducted and analysed until theoretical saturation was reached, and a further two interviews allowed for validation of the initial themes generated.

**Confidence in Undertaking Particular Tasks in Telephone Consultations**

The distribution of trainee confidence to work independently, and mean confidence levels of respondents, in 17 aspects of telephone consultations are tabulated in ascending order (**Figure 1**). GP trainees rated least confidence with the following aspects of telephone consultations: communicating with at-risk or vulnerable patients (for example, those with learning disability or language barriers); complex clinical scenarios (for example, patients with multiple co-morbidities); and challenging clinical situations (for example, breaking bad news). Whereas, ascertaining the main reason(s) for consultation, general communication skills and documentation were seen as aspects of telephone consultations that GP trainees felt most confident to undertake independently.

GP trainees were also asked about specific training in relation to these 17 aspects and this was charted alongside their level of confidence as counts to those who responded ‘yes’ (**Figure 1**). Generally, those aspects which GP trainees had the least amount of training in, were also those where they felt least confident in working independently, and vice versa. **Figure 2**, demonstrates that there was a strong positive correlation (R2 = 0.71, p <0.0001) between whether or not trainees had received training and their confidence to work independently.

One emergent theme from the semi-structured interviews, was the positive impact of experience consulting by phone on confidence. For example:

*Interview 1, ST4: “I think actually if you do telephone consulting, in practice, certainly, it's just the more you do it the more you get used to it”*

*Interview 3, ST3: “the more you practise that skill, the more you I suppose reflect on when it goes wrong, then you become more confident and better at it in both ways”*

**Positive and Negative Experiences**

Our questionnaire data shown in **Figure 3**,supported by the qualitative data, describe the main reasons selected by GP trainees for positive experiences from telephone consultations: trainee efficiency in managing workload; ease of access for patients; and positive patient feedback. During the interviews, these advantageous patient-related and doctor-related factors of convenience, reduced workload and more efficient decision-making were highlighted.

*Interview 2, ST3: “definitely reduces your workload…much more efficient because you take that history on the phone”*

*Interview 3, ST3: “with emergency problems that need to go in to hospital and you know it saves them the time of coming in”*

*Interview 5, ST3: “some of the stuff can be dealt with remotely…they take like two minutes to do”*

There was an association between trainees’ seniority and their agreement with a statement about an overall positive experience in undertaking telephone consultations with primary care patients. Trainees in years 3-4 (ST3-4s) were more likely to agree with this statement (mean score 3.8) compared with trainees in years 1-2 (ST1-2s) (mean score 2.9, p<0.0001).

Similarly, the main reasons for negative experiences given in the interviews, were the difficulty in more complex consultations (for example, risk assessment), absence of non-verbal cues, and absence of examination with the consequent difficulty in picking up physical cues from patient (**Figure 3**).

*Interview 1, ST4: “it's really hard to safety net…you end up having to bring someone in”*

*Interview 4, ST3: “if they are hard of hearing, or English isn't their first language…or the line's fuzzy”/ “skewed picture…no body language, no visible clues”*

*Interview 7, ST4: “higher degree of uncertainty…lack of kind of physical feedback, lack of examination, it's more risky”*

Difficulties in terms of privacy, confidentiality and particularly differences between the patient and doctor’s agenda were also highlighted as important themes in some of the interviews, which were not raised in the earlier questionnaires.

*Interview 8, ST1: “their sort of agenda…that can be quite difficult when you're…trying to manage expectations of what can and can't be done through the telephone consult.”*

*Interview 9, ST1: “trying to understand the patient's agenda is a skill…even more difficult to achieve, on a telephone conversation…skills to understand what's appropriate and what's inappropriate”*

**Experiences of Training**

All trainees, regardless of stage of training and region, agreed or strongly agreed with statements relating to gaps in their learning and a need for training for undertaking telephone consultations to be strengthened. However, a key positive aspect of training was the recent introduction of audio-COTs (clinical observation tools) for the learner portfolios, and trainees as part of the qualitative interviews emphasized their benefits:

*Interview 7, ST4: “well I think audio COT's have been brilliant…I've used them three or four times now…I think that's been a real plus”*

*Interview 1, ST4: “if a COT could also just be someone listening to you do a few telephone consultations, in primary care, I think that would be good”*

Based on the questionnaire responses for current training and supervisor feedback in relation to telephone consultations, the most common form of training selected by GP trainees was trainer-led teaching with feedback provided by the supervisor. However, a similar number claimed to receive no training and feedback, and this fits with the qualitative narrative of requesting more training and feedback.

*Interview 6, ST1: “I think definitely some training earlier on… more specific, explicit training needs would be better for us to train up our skills”*

*Interview 10, ST2: “I guess getting feedback... I haven't had the opportunity to really have people listen to me and then suggest what they would do differently, which I think would be helpful”*

**In-hours versus Out-of-Hours (OOH) Practice**

A further finding from across the questionnaires and interviews was the perceived differences between the adequacy of training for telephone consultations in the different service context and case-mix of ‘in-hours’ and ‘OOH’ clinical services. Given the varied experiences in-hours and OOH, we evaluated whether the length of experiences in each had an impact on the overall impact in terms of confidence, supervision and feedback received. There were weakly positive correlations (p<0.01) between experience both in terms of length of time or number of contacts and building overall confidence in telephone consulting both in-hours and OOH (**Table 2**). There were also weakly positive correlations (p<0.01) between greater OOH experience (in terms of length of training and average number of contacts) and greater satisfaction in terms of both supervision and feedback received, which was not seen for in-hours training (**Table 2**). The semi-structured interviews provided some explanations for this, with one participant reporting their OOH training as follows: *“had a lot of supervised sessions…so we've been observed undertaking phone calls…and been given feedback”.* Another trainee described in-hours training as follows: *“in-house telephone consults, can be a bit harder…friction between the patient's agenda and what can and can't be done”*; *“a set number of hours…but it should be supervised and you should get feedback about them”*. This discrepancy can be explained by the different environments, particularly in relation to the potentially more complex and varied nature of in-hours telephone consultations (**Figure 4**).

**DISCUSSION**

**Summary of Main Findings**

This mixed methods study, involving a cross-sectional survey with follow-up semi-structured interviews, demonstrated that GP trainees felt least confident in independently undertaking more complex aspects of telephone consulting, and that there was a linear relationship between the training received and trainee confidence. Positive perceptions of telephone consultations were linked to managing trainee workload and perceived convenience for both patients and doctors, whereas negative experiences stemmed from more complex encounters, communication barriers and inability to examine patients. Trainees felt that there were gaps in their competency acquisition and that the training for telephone consultations needs to be strengthened, but welcomed the recently introduced audio-COTs. Our analyses also highlighted some differences in experiences between training in-hours and OOH, and identified key barriers and facilitators that explained the stronger association between training and satisfaction with supervision and feedback for OOH compared with in-hours training. Finally, the qualitative and quantitative findings can provide further understanding of telephone consultations for GP trainees, which may be useful for both trainees and trainers in both ‘in hours’ and OOH environments.

**Strengths and Limitations**

The strengths of this study include the focus on an under-investigated yet important (according to our participants) research topic. Involving both GP trainers and trainees in development of the questionnaire and interview schedules improved their validity. Using a mixed methods approach, combining quantitative and qualitative methods allowed a richer understanding of the research area. The limitations of the study include potential lack of generalisability, since permission was only granted to contact trainees in one of three London regions. Therefore, experiences are dependent on local services and training priorities may be different elsewhere. There was a low response rate of 16%, typical of external healthcare surveys, which range from 15-29% 19, despite several email reminders to trainees and announcements by programme directors. We relied on third party provision of trainee contact details, which may not have been updated, artificially lowering our response rate. Demographic data for all NCEL GP trainees, both responders and non-responders, was not able to be provided, so it is difficult to establish whether the questionnaire population was reflective of our study population and examine generalizability directly. Furthermore, the first author (UC) is a GP trainee within one of the 11 VTS in NCEL region. Though this helped with logistical aspects and allowed greater scrutiny of the project, it raises the issue of responder and researcher bias. However, there were 100 responses and participation from all 11 VTS locations within NCEL with trainees at differing training stages, which helped to accommodate a wide-range of experiences.

**Comparison with Existing Literature**

To our knowledge this is the first study investigating UK GP trainees’ experiences in telephone consultations. There are potential international synergies as well; for instance in Australia, where remote consultations are common outside urban areas, a recent systematic review has highlighted a lack of high level evidence for the value of primary care telephone consultations when compared to face-to-face consultations20. A number of recent studies have also highlighted a lack of training in telephone consultation-related competencies, with training suggested as a factor to minimise some of the potential adverse patient and medico-legal consequences associated with telephone consultations2 8. Generic communication skills research shows that trainees recognise the importance of these skills in primary care and a preference for receiving feedback21. Our findings in relation to telephone consultations support this; demonstrating strong preference towards supervisor observations, a current lack of feedback especially in routine hours, and the overall need to strengthen training.

The questionnaire highlighted the most common reason for positive experiences as being ‘efficiency in managing workload’, and this was further explained in the semi-structured interviews as being able to take the “*history on the phone*”, manage “*emergency problems*” remotely by saving “*them the time of coming in*” and *“some of the stuff can be dealt with remotely*”. The literature highlights both positive and negative effects of telephone consultations on workload11 22 23. Our results enhance these findings by adding the trainees’ point of view. Furthermore, though our study did not look specifically at patient satisfaction to telephone consultations24, positive patient feedback was rated highly as one of the reasons for positive experiences. From a training perspective, audio-COTs also received positive feedback, and trainees felt that this implementation has been successful in providing structured feedback25.

There is limited evidence on tele-healthcare related education and training for practitioners26. A recent tele-healthcare review identified complex domains such as privacy and security as aspects that may become increasingly important, and that care for chronic conditions and medication reviews are important for telemedicine services27. We demonstrated that complexity in consultations often left the trainees feeling under-confident, and that there was a positive correlation between the training received and the confidence to perform that particular competency independently. This has been demonstrated previously with respect to professional skills training in communicating with patients28 29. Whilst it is important to appreciate that confidence in specific attributes was correlated with the training received; this does not assess patient-related outcomes, which are formed by the relationship between trainee confidence, competence and performance.

Overall, the positive and negative experiences of trainees were broadly in line with those previously described for GPs in the literature. Patients have been shown to be highly satisfied in terms of ease of access, though opinions differ on the effect on workload, as highlighted within our analysis3 29. We demonstrated that negative experiences stem from complex situations, absence of examination, difficulty in picking up cues and lack of specific training, and these are re-affirmed as similar to known shortcomings of performing telephone consultations in qualified GPs29. From a policy perspective, telephone consultations are becoming more integral to practice5-7, including OOH practice. GP trainees are also being introduced to different clinical situations, and changing clinical practice, within in-hours and out-of-hours practice. Given the evolving landscape of primary healthcare and the potential diversity of the working environment, the comparison between these two fundamental environments is essential. The barriers and facilitators in OOH training when compared to in-hours training, need further consideration, and this study provides important initial findings in this area.

**Implications for Research and/or Practice**

With recent calls for “more research assessing the effect of different training interventions on clinicians’ telephone consultation skills”8, we have showed that there appears to be a lack of specific training for GP trainees; and that overall feedback and supervision within this field needs strengthening. These findings, and our educational recommendations, are potentially relevant to the development of remote consulting curricula for postgraduate training world-wide, and specifically for the RCGP in the UK9 30. They could also inform policy-makers of the importance of training needs, and consider the views of trainees to enhance the safe introduction of innovation in practice and of considering the views of practitioners on efficacy. The findings can also be reflected for the training development of other healthcare practitioners, not just GPs and trainees, who use telephone consultations and tele-medicine5 31. Future research might include replicating these analyses in other regions, and incorporating other modalities of tele-healthcare, for example video and email consultations.

**ADDITIONAL INFORMATION**

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As part of a locally funded Academic Clinical Fellowship (ACF) at St George's University of London (SGUL), Umar Chaudhry utilized some funds for interview transcribing, and presentation at regional or national conferences. The views expressed are those of the authors and not necessarily those of the NHS, Health Education England (HEE), the National Institute for Health Research (NIHR), the Royal College of General Practitioners (RCGP), or the Department of Health.

**Ethical Approval**

The University of Edinburgh was the research sponsor and a Level 2 study application was approved. Further ethical approval was sought and by the Research Governance Group (RGG) at Health Education England (HEE) and locally by the HEE North Central and East London (NCEL) team.

**Competing Interests**

The authors have declared no competing interests.

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