PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The British Thoracic Society survey of rehabilitation to support recovery of the post COVID-19 population
AUTHORS	Singh, Sally; Barradell, Amy; Greening, Neil; Bolton, Charlotte; Jenkins, Gisli; Preston, Louise; Hurst, John

VERSION 1 – REVIEW

REVIEWER	Dr Santosh K Chaturvedi National Institute of Mental Health & Neurosciences Bangalore, India
REVIEW RETURNED	03-Jun-2020

GENERAL COMMENTS	is a timely comprehensive survey. The paper can be accepted, however I have two suggestions to the authors. Firstly, if the demographic characteristics of the 750 persons who did not respond could be compared with those who responded, it would add value to the report. Secondly, the decimals may be removed, for ease of reading the numbers.

REVIEWER	Bartolo Michelangelo Habilita Zingonia, Italy
REVIEW RETURNED	04-Jun-2020

GENERAL COMMENTS	Authors investigated one of the main aspects due to the COvid-19 pandemic: the discharge process and recovery programme for post-Covid patients. They choice to approach this issue by collecting spontaneous data reported by health professionals involved in care management of these patients. Moving in this direction they proposed an online survey based on a series of closed questions and free comments. Participants were British Thoracic Society members and multi-professional clinicians, across different specialities. As reported by Authors the responses indicate the huge interest and the urgent need establish a programme to support and mitigate the long term impact of Covid-19. This survey provides recommendations for the provision of advice and support immediately upon discharge, and recommendations for a programme of holistic rehabilitation 6-8 weeks post discharge based upon the existing pulmonary rehabilitation model. Although the limitation due to the lack of the opinions of patients and caregivers, in my opinion the study was well conducted and results are well described and discussed throught the text.

REVIEWER	Oliver O'Sullivan

	Academic Department of Military Rehabilitation, Defence Medical Rehabilitation Centre (DMRC) Stanford Hall Stanford on Sour, Loughborough, LE12 5QW
REVIEW RETURNED	30-Jun-2020

GENERAL COMMENTS	The British Thoracic Society survey of rehabilitation to support recovery of the Post Covid -19 population. Dear Prof Singh, Amy and team, Thank you for asking me to review this paper. I think it is a very notable piece of work and needs to be published. However, I am not sure it is ready for that yet and I have a few points for you to consider as a way to improve this further. From a grammatical point of view, it is overall, well written, but needs some work. Some paragraphs are longer than a page so need to be broken down. You have to address the use of acronyms – they need to be written out in full on the first usage and thereafter shortened, but this does not happen. Also, COVID-19 needs to be written correctly. Commas would be helpful to break up long sentences and demarcate sentence subsections. Is it a deliberate choice to interchange interdisciplinary and multidisciplinary? From a methodology point of view, why were the elements of the questionnaire chosen? How was it designed? Why was it only open for 6 days? I can't see the questionnaire as a supplementary file, despite this being mentioned in the test. I would like to see this. From a results point of view, I am not convinced that your data supports your conclusion is the way it is written. There are sections of the paper that read as though you have already made your mind up before the survey was completed. I think graphs and tables could be employed to display results in a simpler way. Overall, there are parts that seem to contradict each other and make it hard to understand what you want the reader to understand. Please find more detailed feedback below. I would be happy to review your amended paper and look forward to seeing this valuable work in print. Page 4 of 33 Abstract – well laid out and clear. It is a leading statement that Pulmonary Rehabilitation is well placed to deliver COVID-19 rehabilitation, were other models of Rehabilitation systems considered? (especially as the survey returns alluded a wide variety of rehab models) COVID-19 should be written in capitals, written in full initially (Coronavirus Disease 2019) and then shortened. Page 5 of 33

	In your conclusion, there is a 'to' missing in the line "and the urgent need establish". There are no limitations in your strengths and limitations section (despite being mentioned in the main body). It would also be useful to know what specialties returned the survey at the start. Page 6 of 33 Background SARS needs to be written out in full on the initial usage and then shortened. Line 32 a sentence describing a 'strong evidence base' needs some references Page 7 of 33 It is difficult to follow your train of thought about the relevance of pulmonary rehabilitation in the post COVID 19 population. Is it or isn't it? See below; 'Participants frequently have long term complications…mirror those in COVID-19' … 'rehab needs of post COVID 19 pop'n are likely more diverse' … 'mean age of covid-19 was 52…compared to 69… compared to 72' … 'widespread nature of pandemic, substantial number of young people with different needs' I suggest redrafting this section. Also, what population is the UK ISARIC registry referring to? UK ISARIC has to be written out in full and then shortened. You need to be consistent with your use of numbers and ranges in parenthesis – all three numbers (and ranges) are laid out differently. ARDS needs to be written out in full You refer obliquely to Post Intensive Care Syndrome, but don't actually mention is. Is that a deliberate choice? Overall, the background could be shortened. I think there is far too much detail on Pulmonary Rehabilitation which could sit in the discussion. It reads as if you have already decided the outcome of the survey before reading the responses (especially as free text comments don't all agree with this point of view). Methods – line one, second sentence, 'team a' is the wrong way round. Page 8 of 33 I think the words consensus and opinion are similar enough in meaning to only require one, not both. You need to write out in full on the full use of ATS and ERS and then shorten.

	Why 6-8weeks as a time period to have the rehab programme? The sentence reads like you have arbitrarily chosen it, and the reference takes you to a landing page for all the COVID-19 blogs. Please can you review this reference and give a specific paper from this repository. Surely there is data from SARS, MERS or post ICU rehab literature that you can cite? Survey distribution Where is the survey? I would like to see it. Why was the survey open for such a short time? You send a reminder on the day it closed, was that too late? If survey was on Twitter, why could patients and public not complete it? Do you think this was a limitation to not have the patients voice in the design of a programme for patients? Page 9 of 33 Data analysis Why was 300 seen as robust and representative? Was that evidence based? Did you need a proportion of different specialties to ensure full representation (if so, how was this achieved?) Results A wide spread of specialties which is commendable. However, two questions on demographics, did you feel 71% of respondents being of a physiotherapy background might contribute any bias to the results? Also, could you explain the vast discrepancy between female (84%) and male (16%) respondents? What private (business) sector is referred to? Please could you expand on this. The respondents demographic data could be captured in a table, which would be easier to read and understand. Was it a limitation that 361 respondents had not experience of managing COVID 19 and 442 had no experience of rehabilitation? Page 10 of 33 The final sentence in Results needs a full stop at the end, not a comma. Also, that last sentence is confusing, are these 167 respondents in addition to those discussed earlier? Suggest removing that line or rephrasing to clarify meaning. Recommendations for early phase Shorten PTSD as it is mentioned further down Can you say that all proposed survey items were recommended, as advice on a digital platform wasn't? Needs more commas or shorter sentences. Suggest you break the paragraphs up into smaller paragraphs.

	Page 13 of 33 You have already introduced PTSD on page 10. Overall, I think this section should be rewritten. Can the tables be represented in graphical form? I think that would be easier to understand at a glance. There are pages of text/tables which could be display in a series of clear graphs. Tables only have positive responses, I would like to see all responses. What is referred to in 'N=', is that response to question? Why does it vary so much? Table 1 1026-1030, Table 2 1021-1023, table 3 1022? Why did not one question have all 1031 respondents reply? Recommendations from free text Do you think a collaborative effort for rehabilitation development is the same as pulmonary rehabilitation with add ons? Have you thought about how to capture the iterative changes as a result of the learning, research and service evaluations? There seems to be a discrepancy between the respondents in the timing and location of rehabilitation, how does that sit with your hypothesis of 6-8weeks outpatient rehab? Did the referral pathway problem get addressed? You mention 341 free text comments, but only 7 appear in Table 4. Where are the rest and why were those comments chosen? Page 20 of 33 I don't think its accurate to say that the predominant symptoms of covid19 are respiratory without a reference, especially as fatigue is multifactorial. The data from Prof Spector and the team at ZOE would give you a useful reference for this statement in the UK population (presumably the primary interest of the BTS). I feel like you have interpreted the survey comments through the lens of a respiratory team, those comments I have read don't exactly correlate. You can make the same points, but you need to articulate that these are your thoughts, not the necessarily the results of the survey. You have to break up this incredibly long paragraph, it's really hard to read. Page 21 of 33 In the final section of the discussion, it is unclear what key message you want the reader to take away; COVID 19 rehab is important? COVID 19 rehab should be combined with pulmonary rehab COVID 19 should not be combined with pulmonary rehab POST ICU rehab needs to be increased A COVID 19 pathway needs to be designed

	I suggest a redrafting this section with a clear message is mind is undertaken. The need for individual rehabilitation programmes has been alluded to but I think needs to be more explicit. In a rehabilitation paper, can you discuss acute management? Conclusion The first sentence starts 'These data' – this needs to be amended. Otherwise, good, pithy conclusion The flowchart is not mentioned in the text. Have you created this or taken it from elsewhere? Do you think collaboration with other organisations such as the CSP, BSRM, RCOT, RCP might be helpful?

REVIEWER	Lauren Ferrante, M.D., M.H.S. Yale School of Medicine, U.S.A
REVIEW RETURNED	16-Jul-2020

GENERAL COMMENTS	This is a survey of British Thoracic Society members, administered in anticipation of the post-discharge needs of COVID-19 survivors. The survey was built on the foundation of the pulmonary rehabilitation and post-ICU syndrome (PICS) literature, while recognizing that COVID-19 is a unique disease and COVID-19 survivors may therefore have unique needs. The purpose of the survey was to identify (1) additional components of a post-COVID-19 rehabilitation assessment, and (2) elements of a post-COVID rehabilitation program that would be needed to serve two COVID-19 populations: those who survived a COVID hospitalization, or those with persistent symptoms whose acute illness was managed in the community. The authors received 1031 responses to the survey; 71% of the responses were from physical therapists. The manuscript includes a comprehensive presentation of the survey results. I have some concerns that preclude publication at this time. Major comments: 1. The authors report that 1031 professionals responded to the survey, but do not provide the number of British Thoracic Society members to whom the survey was circulated. Please provide this denominator and present the participation rate. 2. Page 15, 5th theme, lines 21-26: The authors mention building on current models of care, and then go on to list several models for which the data are not widely known. Can the authors please provide citations supporting the use of hydrotherapy, yoga, tai chi, and acupuncture in improving recovery after a severe respiratory illness or a hospitalization? These citations will help educate the broader readership of the journal. 3. Discussion: The discussion is quite long; page 20 is one long paragraph. Can the authors please make the discussion more succinct and organized? Additionally, the discussion should include a strengths section and a limitations section.

	4. Discussion and “Strengths and Limitations” section of the abstract : The authors report that survey responses were delivered by “a wide variety of professional backgrounds and specialties,” but 71% of the respondents were from one specialty, which deserves mention as it limits the generalizability of the findings to other specialties. Please add this to the limitations section of the discussion and the “Strengths and Limitations” section of the abstract as a bullet. 5. The figures on page 19 and 34 seem to be offering the same pathway and recommendations, with the only difference being the labeling of the arrow on the left. Are both figures necessary, or is there some way to combine the two into one more effective figure? Minor comments: 1. Background, line 32, “There is a strong evidence base demonstrating…” – Please add citations supporting this statement. 2. This is a minor point, but some of the language in this paper will not be understandable to the international community. For example, in the Results (line 57), what are “acute trusts”? It may be helpful to define this succinctly in parentheses for the international reader. 3. Page 10, line 5, typo: “managing” 4. Page 10, line 13: The sentence ends with a comma; please either complete the sentence, or change the comma to a period. 5. Figures: Please define the abbreviation “SALT."

REVIEWER	sarah de biase AGILE, UK
REVIEW RETURNED	18-Jul-2020

GENERAL COMMENTS	Title - 'Post COVID population' why capital P in post and does this mean 'COVID affected' or anyone impacted by COVID. Abstract refers to COVID as 'Covid-19' - title should use be consistent. The main feedback is: if this article intends to advocate for a pulmonary rehab approach then need to ensure the is emphasis on a needs based and individualised approach to post Covid-19 care (which for some pulmonary rehab may not be the right fit) and to ensure the messaging allows for a step away from pulmonary rehab approach for those who this applies to... and maybe more work needed to identify the specific subset for whom pulmonary rehab model integral e.g. lung function or exercise induced hypoxaemia etc. I feel the survey results read like comprehensive assessment of needs across multiple domains is what is needed - think we need to be careful about pinning the recommendation on pulmonary rehab response although this may be the right fit for a certain cohort/subset... See further comments within attached pdf version of article.

VERSION 1 – AUTHOR RESPONSE

Location of review	Reviewers query/suggestion	Action taken
Results section	If the demographic characteristics of the 750 persons who did not respond could be compared with those who responded, it would add value to the report	Data analysed and additional statement added: • 'A further 750 respondents only provided answers to the demographic questions on page 1 and therefore do not form part of this report, however, their demographics are consistent with the results presented below' (Pg. 8).
Throughout entire document	The decimals may be removed, for ease of reading the numbers	Decimals removed.
Abstract and Discussion	To acknowledge the limitation of a lack of the opinions of patients and caregivers	The following has been added to the 'Limitations section'. • No data was collected from patients, carers or the general public, however this will be sought in an additional survey (Pg. 3)
Throughout entire document	Some paragraphs are longer than a page so need to be broken down.	Long paragraphs split into new, shorter paragraphs.
Throughout entire document	You have to address the use of acronyms – they need to be written out in full on the first usage and thereafter shortened	All acronyms written out in full on first usage.
Throughout entire document	COVID-19 needs to be written correctly	Acronym corrected throughout.
Throughout entire document	Is it a deliberate choice to interchange interdisciplinary and multidisciplinary?	Interdisciplinary now consistently used.
Methods	From a methodology point of view, why were the elements of the questionnaire chosen? How was it designed? Why was it only open for 6 days?	Regarding the design/content of survey a statement has been added to explain our decision to keep the survey open for 7 days: • '7 days access covered a bank holiday, scheduled work days and a weekend which maximised opportunities to complete the survey' (Pg. 7)
Methods	I can't see the questionnaire as a supplementary file	Filename 'Suppl file BTS survey' will be uploaded with this submission.

Throughout entire document	Consistent reviewer comment: From a results point of view, I am not convinced that your data supports your conclusion in the way it is written. There are sections of the paper that read as though you have already made your mind up before the survey was completed. If this article intends to advocate for a pulmonary rehab approach then need to ensure the is emphasis on a needs based and individualised approach to post Covid-19 care (which for some pulmonary rehab may not be the right fit) and to ensure the messaging allows for a step away from pulmonary rehab approach for those who this applies to... and maybe more work needed to identify the specific subset for whom pulmonary rehab model integral e.g. lung function or exercise induced hypoxaemia etc.	Thank you for this comment. We agree that there was a premature emphasis on pulmonary rehabilitation. We have therefore removed explicit reference to pulmonary rehabilitation where possible in the background, but have added the recent BMJ paper to acknowledge the role of pulmonary rehabilitation in COVID-19 recovery (Greenhalgh et al., 2020).
Results	I think graphs and tables could be employed to display results in a simpler way.	We have converted our Tables into graphs.
Abstract: conclusion section	In your conclusion, there is a 'to' missing in the line "and the urgent need establish".	Sentence amended.
Abstract: strengths and limitations section	There are no limitations in your strengths and limitations section (despite being mentioned in the main body).	Limitations acknowledged. The following have been added to this section (Pg. 3): • No data was collected from patients, carers or the general public, however this will be sought in an additional survey • 71% of respondents were physiotherapists and 84% of respondents were female, limiting the generalisability of results to all relevant specialties • 25% respondents had no experience of managing patients with COVID-19 and 31% had no experience of rehabilitation.
Abstract: results	It would also be useful to know what specialties returned the survey at the start.	We agree but the word limit is 300 words and this with the other suggestions would push us over the limit. We have identified in the abstract that a wide range of healthcare professionals responded, and these are identified in the body of the text.

Background	What population is the UK ISARIC registry referring to	Population added to the text: • '(UK ISARIC) registry of 16,749 COVID-19 admissions' (Pg. 6).
Background	You need to be consistent with your use of numbers and ranges in parenthesis – all three numbers (and ranges) are laid out differently	Amended for consistency.
Background	You refer obliquely to Post Intensive Care Syndrome, but don't actually mention is. Is that a deliberate choice?	We have considered this comment and have chosen not to expand on the post ICU syndrome reported. However, since submission it has become clear that the burden of those with community managed COVID-19 is significant and we have therefore added in a sentence to highlight the need of all post COVID-19 individuals in the background: • 'Furthermore any pathway should be accessible to those who remained in the community to manage their COVID-19 infection but have had a slow and incomplete recovery' (Pg. 5).
Methods	'team a' is the wrong way round.	Text amended.
Methods	I think the words consensus and opinion are similar enough in meaning to only require one, not both.	Text amended to say 'consensus'.
Methods	Why 6-8weeks as a time period to have the rehab programme? The sentence reads like you have arbitrarily chosen it, and the reference takes you to a landing page for all the COVID-19 blogs. Please can you review this reference and give a specific paper from this repository.	The timeframe was suggested in line with a consensus document supported by the European Respiratory Society/American Thoracic Society consensus statement with experts in the field. The reference is now a link to the paper that has been accepted by the European Respiratory Journal (Singh et al., 2020).
Methods: survey distribution	Why could patients and public not complete it? Do you think this was a limitation to not have the patients voice in the design of a programme for patients?	The following has been added to the 'Limitations section:' • No data was collected from patients, carers or the general public, however this will be sought in an additional survey (Pg. 3)
Data analysis	Why was 300 seen as robust and representative? Was that evidence based? Did you need a proportion of different specialties to ensure full representation (if so, how was this achieved?)	We did not plan to achieve full representation of all relevant professions. This has been noted as a limitation (see comments above; Pg. 3).

Results	Did you feel 71% of respondents being of a physiotherapy background might contribute any bias to the results?	We have acknowledged this as a limitation (please see above; Pg. 3)
Results	Could you explain the vast discrepancy between female (84%) and male (16%) respondents?	We have acknowledged this as a limitation (please see above; Pg. 3)
Results	What private (business) sector is referred to?	Amended to 'private industry sector'.
Results	Was it a limitation that 361 respondents had no experience of managing COVID 19 and 442 had no experience of rehabilitation?	Acknowledged as a limitation (please see above; Pg. 3)
Results	The final sentence in Results needs a full stop at the end, not a comma.	Text amended.
Results	Also, that last sentence is confusing, are these 167 respondents in addition to those discussed earlier? Suggest removing that line or rephrasing to clarify meaning.	Text amended to provide clarity. • Of the 1030 respondents, 167 (16%) had no experience of managing patients with COVID-19 or rehabilitation (Pg. 9)
Results	Can you say that all proposed survey items were recommended, as advice on a digital platform wasn't?	Text amended. • All but one proposed survey items (online/digital delivery) were recommended for the early phase of COVID-19 recovery (Pg. 9)
Results	What is referred to in 'N=', is that response to question? Why does it vary so much?	N=number of responses. Responses were optional and therefore some respondents did not complete all questions.
Results	Have you thought about how to capture the iterative changes as a result of the learning, research and service evaluations?	This was not the purpose of this paper but will be the next interesting avenue for exploration.
Results	There seems to be a discrepancy between the respondents in the timing and location of rehabilitation, how does that sit with your hypothesis of 6-8weeks outpatient rehab?	We have not adjusted the text in response to this comment, we have revisited the text and feel that the following did not reach consensus and therefore does not necessarily conflict with the timeframe in the document: • 'There was debate about the timing of rehabilitation with some respondents leaning towards inpatient rehabilitation to minimise functional loss and others towards outpatient rehabilitation to allow time for immediate physical and psychological recovery. Access to rehabilitation was also acknowledged, with respondents highlighting the need for a clear referral pathway that healthcare

		professionals and patients can refer and re-refer to as necessary' (Pg. 15).
Results	Did the referral pathway problem get addressed?	This was not the purpose of the survey, however we have developed a model presented in this paper to illustrate a proposed pathway.
Results	You mention 341 free text comments, but only 7 appear in Table 4. Where are the rest and why were those comments chosen?	An expanded table is available in online supplement, however, it was not appropriate to provide all comments, chosen quotes illustrate the themes sufficiently.
Discussion	I don't think its accurate to say that the predominant symptoms of covid19 are respiratory without a reference, especially as fatigue is multifactorial. The data from Prof Spector and the team at ZOE would give you a useful reference for this statement in the UK population (presumably the primary interest of the BTS).	Sentence removed.
Discussion	In the final section of the discussion, it is unclear what key message you want the reader to take away; COVID 19 rehab is important? COVID 19 rehab should be combined with pulmonary rehab COVID 19 should not be combined with pulmonary rehab POST ICU rehab needs to be increased A COVID 19 pathway needs to be designed I suggest a redrafting this section with a clear message is mind is undertaken. The need for individual rehabilitation programmes has been alluded to but I think needs to be more explicit	We have deleted the following phrases: • 'alongside conventional pulmonary rehabilitation population…' • '….by integrating with established pulmonary rehabilitation services' We agree this is a distraction to the reader. The discussion should now be more focused (Pg. 22).
Discussion	In a rehabilitation paper, can you discuss acute management?	We believe this is appropriate as this paper provides guidance for early phase and rehab phase of recovery.
Conclusion	The first sentence starts 'These data' – this needs to be amended.	Text amended.
Discussion	The flowchart is not mentioned in the text. Have you created this or taken it from elsewhere?	We created this. This has now been articulated clearly in the text.
Throughout entire document	Do you think collaboration with other organisations such as the CSP, BSRM, RCOT, RCP might be helpful?	Yes absolutely. Following this work we have developed the 'Your Covid Recovery' website in collaboration with these and other integral organisations.

Abstract and methods	Make clear it was a BTS developed paper not for BTS members	Updated text to clarify that it was a survey for BTS members and healthcare professionals.
Results	The authors report that 1031 professionals responded to the survey, but do not provide the number of British Thoracic Society members to whom the survey was circulated. Please provide this denominator and present the participation rate.	We do not have this data. The survey was open to healthcare professionals from the BTS and other healthcare professionals who accessed the twitter link.
Results	Can the authors please provide citations supporting the use of hydrotherapy, yoga, tai chi, and acupuncture in improving recovery after a severe respiratory illness or a hospitalization? These citations will help educate the broader readership of the journal.	It is not current practice to provide references to prove/disprove qualitative quotes and therefore we have made the decision not add these.
Discussion	The figures on page 19 and 34 seem to be offering the same pathway and recommendations, with the only difference being the labelling of the arrow on the left. Are both figures necessary, or is there some way to combine the two into one more effective figure?	The figures are the same. We have provided it now once.
Background	"There is a strong evidence base demonstrating…" – Please add citations supporting this statement	Text amended with PR as an example: • 'There is a strong evidence base demonstrating that a centre-based supervised out-patient programme of education and physical activity, impacts upon symptom burden e.g. breathlessness, anxiety, depression, health status and exercise capacity. As an example, pulmonary rehabilitation is an interdisciplinary intervention that integrates a broad group of health care professionals including but not limited to physiotherapists, nurses, dietitians, pharmacists, psychologists, physicians, occupational therapists, exercise physiologists and graduates of the programme. The provision of pulmonary rehabilitation is demonstrably successful in clinical practice outside the context of research studies.UK data from over 7000 cases has been collected and reported as

		part of the National Asthma and COPD Audit Programme (Pulmonary Rehabilitation)[8]' (Pg. 5).
Results	This is a minor point, but some of the language in this paper will not be understandable to the international community. For example, in the Results (line 57), what are "acute trusts"? It may be helpful to define this succinctly in parentheses for the international reader.	Text amended to 'secondary care hospital' (Pg. 9).
Results	Page 10, line 5, typo: "managing"	Text amended.
Title	'Post COVID population' why capital P in post and does this mean 'COVID affected' or anyone impacted by COVID.	'p' removed. We refer to anyone recovering from COVID-19.
Title	I'm not sure this is clear as the article is clearly about rehab for those who have been infected with COVID and required treatment in hospital for the virus. But the post Covid-19 population extends to more than just this subset of the population eg those displaced by Covid-19 etc. Could this be "support recovery of people treated for Covid-19 in hospital' so more targeted/specific?	We would propose to keep the title as "The British Thoracic Society survey of rehabilitation to support recovery of the post COVID-19 population". We had included in the background an acknowledgement that a proportion of those who had a community managed infection are also reporting significant symptom burden and are also likely to have a need for a supported recovery: • '…elements of a successful rehabilitation programme that would be required to deliver a comprehensive service for those either discharged from hospital post COVID-19, or for those managed in the community with marked ongoing symptoms that prevent a full recovery' (Pg. 6). This is also included in Figure 1 (Pg. 10).
Title	Remove extra space in title	Text amended.
Abstract	From post-Covid - remove extra '-' not used elsewhere in title or abstract	Text amended.
Abstract: design	Add 'of' after comprising	Text amended.
Abstract: results	Not a complete sentence here... 'early post discharge' what? Done, sentence restructure.	Sentence restructured: • 'There was overwhelming support for an early post hospital discharge recovery programme to advise patients about the

		management of fatigue (95% agreed/ strongly agreed), breathlessness (94%), and mood disturbances (including symptoms of anxiety and depression) 92%' (Pg. 2).
Abstract: results	'the need to potentially return to work' this suggests the need is enforced elsewhere rather than it being a meaningful priority/goal for the individual - which is may well be > any 'need' to return at this 6-8week post discharge time point. could this be rephrased as being about function and participation in family, community and work life?? or similar?	Rephrased to 'ability to return to work' (Pg. 2).
Abstract: results	anything about participation in families/socially? i.e. alongside occupational employment?	Data on families and social participation was not collected and so we are unable to present/discuss this.
Abstract: conclusion	This suggests the establishment of a new 'programme' rather than redesign, expand/optimise existing offers to meet demand - this could be more about 'establishing and/or optimising existing programmes of support...'	Text amended as suggested: • 'The responses indicate a huge interest and the urgent need to establish a programme to support and mitigate the long-term impact of COVID-19, by optimising and individualising existing rehabilitation programmes' (Pg. 3).
Abstract: Strengths and limitations	assessment and rehabilitation.... if we dont assess right, then the rehab wont be tailored to need/pick up deficits..	Text amended as suggested: • 'Large and comprehensive survey conducted to guide the provision of post COVID-19 assessment and rehabilitation' (Pg. 3).
Abstract: Strengths and limitations	And recommendation for standalone… - think this should be a stand alone bullet	Additional bullet point provided: • 'The survey provides recommendations for a programme of holistic rehabilitation 6-8 weeks post discharge based upon the existing rehabilitation models' (Pg. 3).
Abstract: Strengths and limitations	The opinions of… 'needs to be'	Sentence amended.
Background	Line 2 - include what is the exact time frame /period of time being referred to here?	Timeframe added: • 'Since December 2019…' (Pg. 5).

Background	3rd parag - what is meant by remotely here?? non F2F or not in outpt/hospitals i.e/ in community settings or persons own home?	Text amended to clarify: • 'There is a pressing need to develop a safe and efficient discharge process to support patients in the early phase of recovery' (Pg. 5).
Background	3rd parag - a review doesnt the restoration necessarily, but the care planning/onward referral and signposting which results from the finding of the review..	Added these elements to sentence: • '…to set up a mechanism to review these individuals early in the post discharge phase to facilitate care planning, onward referral, restoration of pre-morbid function, holistic well-being and participation in family, community and work life' (Pg. 5).
Background	3rd parag - I dont agree with pure focus on work - meaningful occupation is much more than 'paid work'...	Text amended to remove focus on work (please see above; Pg. 5).
Background	4th parag - need to make the correlation btw COPD and asthma pops to Covid-19 to make this evidence relevant. and to connect with final sentence in section.	The focus of this is for all patients recovering from COVID-19, not just those with chronic respiratory disease, therefore we have reframed the introduction to represent this.
Background	5th parag - '..especially those admitted to ICU...' or '...included in those admitted to ICU...' - ??	Text amended to suggestion: • '...included in those admitted to ICU...' (Pg. 6)
Background	5th parag - sentence incomplete..... 'There is small literature describing....'	Text amended: • 'There is some evidence indicating pulmonary rehabilitation interventions in the SARS population and Acute Respiratory Distress Syndrome (ARDS) are effective[15]' (Pg. 6).
Background	5th parag - add 'primarily' into 'The modifications would …'	Text amended.
Background	5th parag - add: '....which considers the psychological and mental health needs...' at end of last sentence.	Text amended.
Background	6th parag - remove 'we' from 'for those who we…' –	Sentence amended.
Background	6th parag - delete ' but had' and change to 'with'	Text amended.
Results	Add percentages to text - '361 respondents had no experience, the…'	% provided.
Results	PTSD - maybe this should have also been asked as 'information on	As this is a reflective comment only, no action taken.

	recognising the signs/symptoms of' rather than just support for... i.e. how to recognise it rather than treat it more important at this point in time –	
Results	I think QOL is important element in this assessmet at 6-8 weeks and if right tool used it would pull out domains wherein there was need/unmet need which may include work but likely more than this too... i..e. as per previous comments on meaningful occupation in family, community and work etc	As this is a reflective comment only, no action taken.
Results	Note no mention of geriatric medicine which is surprising considering the demographic most impacted by Covid-19.... did this come across in the survey as a expert group needing to be involved/consulted?	A sub-set of respondents were from this occupational group and so have contributed. There was no further recommendations for this group in free text comments.
Results	Raise its profile yes, but is this also about a campaign to educate patients and their carers as to what they should expect to receive? the latter important if we are to draw out those in community fearful of accessing services...	Sentence amended to reflect the suggestion: • 'Respondents felt there was a need to produce clear guidance for COVID-19 management, including this rehabilitation model, and there should be an educational campaign to promote COVID-19 rehabilitation, raise its profile amongst patients, carers and referrers and embed it within the COVID-19 recovery pathway' (Pg. 15).
Abstract	4th parag - I think qualitative points 'secondly and thirdly' are highly important and need to be drawn out in the abstract - otherwise it reads as though pulmonary rehab is the 'only' solution but this isn't set in stone nor what we would expect from current population health approaches i.e. individually tailored needs based care and support planning	An additional comment has been added to the results of the abstract and the word 'pulmonary' has been deleted. • 'The free text comments added depth to the survey and the need 'not to reinvent the wheel' rather adapt well established rehabilitation services to individually tailored needs based care with Continued learning for service development' (Pg. 2).
Results	As a fifth theme…' again raises question as to why geriatricians not listed in list of collaborative specialists involved in covid rehab pathways....	As this is a reflective comment only, no action taken. Although, we note that healthcare professionals in the specialty Care of the Elderly were included in this survey (12%).

Discussion	Add to sentence of 'screening for PTSD and fatigue' - and frailty as a comorbidity/predictor of poor outcomes...	This is not one of our findings in Table 2, so decision to make no change.
	Please re-upload your supplementary files in PDF format.	PDF documents provided with this submission.
	Kindly provide heading in your 'Patient and Public Involvement' section	We did not include patients in the survey and have added it as a weakness. The British Lung Foundation have conducted a complementary patient survey extending to all individuals infected by COVID-19.

VERSION 2 – REVIEW

REVIEWER	Oliver O'Sullivan Defence Medical Rehabilitation Centre, Stanford Hall, Loughborough, United Kingdom
REVIEW RETURNED	25-Aug-2020

GENERAL COMMENTS	25th August 2020 BTS Survey peer review Dear Prof Singh and team, Well done, that is a much more focused paper, elegantly articulating the points that the survey points and you believe – the adaption of current pulmonary/cardiac rehab programmes, with individualisation following accurate assessment for named elements, is the way to create the sustainable COVID-19 rehab programme required by many patients. I was involved in the 'Stanford Hall consensus statement for post COVID-19 rehabilitation' (May 2020, BJSM), and many of the same points are made - it is great to see similar suggestions recommended by BTS members, forming the background of the much needed NHS rehabilitation service creation and delivery. Overall, much improved. I have suggested some mild changes below, which are nearly all optional and very much minor changes. Well done all, I look forward to reading this in print very soon. Best wishes Abstract - The main body discusses the need for rehabilitation in those who have had hospitalisation for COVID-19 and for those who have stayed in the community, but the first line of your abstract states 'those discharged from hospital'. You might want to consider adjusted this to something broader to cover those in the community. - Otherwise, clear objectives, design, setting, participants, results, and conclusion

	- Much improved strengths and limitations. I would consider adding the lack of patient involvement, but you have addressed this adequately elsewhere, so that's optional. Background - Consider the addition of a final line in your first sentence to reflect the first point above, including those in the community. 'Not all patients will ongoing symptoms will have been admitted, with many self isolating and managed in the community' or something. - I appreciate the change of tone from the previous version, now suggesting the adaptation of existing cardiac and pulmonary rehab programmes, individualised to the patients - Pg 6, line 13 – can you check the range of the age for conventional PR programme,, 69(9) doesn't seem to match the other age ranges. Should that read 69(60-78)? Methods - Thank you for the additional detail re length of survey. An observation is that it could be a limitation, however, you did get over 1000 responses, so perhaps not, and I understand that speed was a key driver. Its just a shame about these pesky peer reviewers delaying the publication! - Thank you also for including the survey as a supp file PPI - in this section, you might want to repeat that the BLF are conducting a complementary survey Recommendations - I am not sure if you have amended the layout or not, but the recommendations are much easier to read divided into timepoints Discussion - Pg 21, line 21. Consider a different word, you use components twice within six words, and then a third time within the same sentence. Figures - Much prefer this layout, v easy to see at a glance what you are telling to communicate.

REVIEWER	Lauren Ferrante, M.D. Yale School of Medicine USA
REVIEW RETURNED	10-Sep-2020

GENERAL COMMENTS	I have no further comments, and thank the authors for their thorough response.

REVIEWER	sarah de biase AGILE, UK
REVIEW RETURNED	31-Aug-2020

GENERAL COMMENTS	page 6 line 47-48 great community dwelling non admitted covid population are being considered as a population who may need to have access to the rehab response.

	Page 6 line 7-10 yes, great that is being acknowledged in the revision and lines 35-40 describe the addition considerations for a programme and a holistic comprehensive ax focus. Page 5 line 40-45: need to include in discussion thoughts or needs to consider how can we adjust 'centre based' provision in context of ongoing social distancing and the ramp up in provision of non face to face care to manage risk of COVID spread? this needs to be discussed in discussion section in more detail This is especially important as on page 9 lines 56-59 'Advice provided on a digital platform failed to reach the 70% threshold (59%), with 24.2% being neutral. This question provided the largest 'neutral response'. - however, we need to factor in referral criteria for rehab programmes and prioritization esp in context of post acute covid phase rehab demand flood - not all pts with covid either in hosp or in community will hit threshold for F2F care when being considered alongside others with rehab needs in absence of a COVID diagnosis and so digital/self care online options may well need to be part of the offer if there is to be equity of access/segmentation according to need and non bias towards covid pts in rehab pathways across all disease groups/populations. and considering the qualitative recommendation of 'using tele-rehabilitation with virtual group-based rehabilitation to maintain peer support' (page 15 line 47-48). Page 13 discussing the Recommendations for the components of a rehabilitation recovery programme for COVID-19 - many of these components are advice focused e.g. advice on managing mood disturbances (anxiety and depression); however, on page 17 it seems none of the themes extracted the need to refer on to more specialist pathways or services should the 'standard albeit holistic rehab programme' not meet their needs e.g. mental and psychological health needs - worth highlighting this in discussion to prevent rehab programme being seen as one and only option for care for post covid populations (i.e. the rehab programme wont be and cant be billed as the silver bullet).

VERSION 2 – AUTHOR RESPONSE

Reviewer No.	Location of review	Reviewers query/suggestion	Action taken
3	Abstract	The main body discusses the need for rehabilitation in those who have had hospitalisation for COVID-19 and for those who have stayed in the community, but the first line of your abstract states 'those discharged from hospital'. You might want	Thank you, we agree this needs to be more transparent. We have amended the first sentence of the abstract (pg. 2) to read "A proportion of those recovering from Coronavirus Disease 19 (COVID-19) are likely to have significant and ongoing symptoms, functional impairment and psychological disturbances."

		to consider adjusted this to something broader to cover those in the community.	
3	Abstract	Much improved strengths and limitations. I would consider adding the lack of patient involvement, but you have addressed this adequately elsewhere, so that's optional.	As this is an optional comment, we have decided to not include this in the strengths and limitations section as we do not have the space or word count, but this does remain acknowledged in the discussion.
3	Backgroun d	Consider the addition of a final line in your first sentence to reflect the first point above, including those in the community. 'Not all patients will ongoing symptoms will have bee n admitted, with many self isolating and managed in the community' or something.	We recognise this could be clearer and so have amended the final line of the first paragraph (pg. 4) to read "The larger cohort of people discharged after ward based care, or managed in the community, are also likely to experience similar if less severe problems." This is also acknowledged further in paragraph 2 (pg. 4).
3	Backgroun d	Pg 6, line 13 – can you check the range of the age for conventional PR programme,, 69(9) doesn't seem to match the other age ranges. Should that read 69(60-78)?	Thank you for flagging this. We have amended this so that it matches the other ranges within the text.
3	PPI	in this section, you might want to repeat that the BLF are conducting a complementary survey	In the first revision we were guided by the BMJ Open to include a section regarding PPI and the wording to use in the event of no patient involvement. We have followed this guidance. This point is however acknowledged in the discussion (pg. 21)
3	Discussion	Pg 21, line 21. Consider a different word, you use components twice within six words, and then a third time within the same sentence.	We have amended the first use of 'components' and kept the 2nd and 3rd for consistency and ease of read (pg. 20).

5	Discussion	Page 5 line 40-45: need to include in discussion thoughts or needs to consider how can we adjust 'centre based' provision in context of ongoing social distancing and the ramp up in provision of non face to face care to manage risk of COVID spread? this needs to be discussed in discussion section in more detail This is especially important as on page 9 lines 56-59 'Advice provided on a digital platform failed to reach the 70% threshold (59%), with 24.2% being neutral. This question provided the largest 'neutral response'. - however, we need to factor in referral criteria for rehab programmes and prioritization esp in context of post acute covid phase rehab demand flood - not all pts with covid either in hosp or in community will hit threshold for F2F care when being considered alongside others with rehab needs in absence of a COVID diagnosis and so digital/self care online options may well need to be part of the offer if there is to be equity of access/segmentation according to need and non bias towards covid pts in rehab pathways across all disease groups/populations. and considering the qualitative recommendation	We have inserted an additional sentence and reference to acknowledge the role of digital solutions. 'Moving forwards, digital solutions may be important to increase capacity and give patients choice' (pg. 20) Reference: NHS England. NHS England » NHS to offer 'long covid' sufferers help at specialist centres. 2020.https://www.england.nhs.uk/2020/10/nhs-to-offer-long-covid-help/ (accessed 20 Oct 2020).

		of 'using tele-rehabilitation with virtual group-based rehabilitation to maintain peer support' (page 15 line 47-48).	
5	Discussion	Page 13 discussing the Recommendations for the components of a rehabilitation recovery programme for COVID-19 - many of these components are advice focused e.g. advice on managing mood disturbances (anxiety and depression); however, on page 17 it seems none of the themes extracted the need to refer on to more specialist pathways or services should the 'standard albeit holistic rehab programme' not meet their needs e.g. mental and psychological health needs - worth highlighting this in discussion to prevent rehab programme being seen as one and only option for care for post covid populations (i.e. the rehab programme wont be and cant be billed as the silver bullet).	We feel this is captured within Figure 4, however, to clarify further we have expanded the following sentence to highlight the role of additional specialisms to support the recovery pathway. 'The comments box allowed us to enrich the survey data and support us in developing an appropriate recovery pathway for the post COVID-19 patient (Figure 4) integrating with the wider multidisciplinary team' (pg. 18).