

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Perceptions on undertaking regular asymptomatic self-testing for COVID-19 using lateral flow tests: A qualitative study of university students and staff
AUTHORS	Wanat, Marta; Logan, Mary; Hirst, Jennifer; Vicary, Charles; Lee, Joseph; Perera, Rafael; Tracey, Irene; Duff, Gordon; Tufano, Peter; Fanshawe, Thomas; Mwandigha, Lazaro; Nicholson, Brian; Tonkin-Crine, Sarah; Hobbs, Richard

VERSION 1 – REVIEW

REVIEWER	Priska Bwana KEMRI
REVIEW RETURNED	11-Jun-2021

GENERAL COMMENTS	The reviewer completed the checklist but made no further comments.
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REVIEWER	Ashley Bardon University of Washington, Epidemiology
REVIEW RETURNED	17-Jun-2021

GENERAL COMMENTS	<p>The paper submitted by Marta Wanat et al aims to provide the first insights on perceptions of asymptomatic COVID-19 self-testing among university students and staff. This study offers new perspectives on COVID-19 self-testing, which have urgent implications for scaling and sustaining asymptomatic screening for COVID-19. Though the study's aims and findings are unique and may be urgently needed for guiding future testing strategies, the paper requires several modifications to improve the clarity.</p> <ol style="list-style-type: none">1. Abstract: The first sentence in the Methods section is not clear and appears to be missing words.2. Article summary: The second bullet point should read 'addressed' instead of 'address'.3. General revisions:<ol style="list-style-type: none">a. Any time the acronym LFT is used, 'test' or 'testing' should not follow the acronym, as it is redundant. Please revise throughout the paper.b. Many sentences throughout the paper are missing periods. Please revise throughout.4. Introduction:<ol style="list-style-type: none">a. The background information on SARS-CoV-2 is weak. This section would be significantly improved by providing more background on the disease, current testing modalities, and the potential impact of asymptomatic self-administered screening. Also, more information could be provided here on the specific LFT used in this study (e.g., description of test, materials required, how test is performed, sensitivity, specificity).
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	<p>b. The sentence in lines 27-31 (third sentence of second paragraph) is not clear. I'm not sure what you are trying to convey here. Please rephrase it.</p> <p>c. The sentence in lines 31-32 (fourth sentence of second paragraph) is also not clear. Repeat testing cannot improve the test's sensitivity, rather it could potentially increase the number of asymptomatic infections identified despite the test's poor sensitivity. I believe that is what you are trying to convey, but please rephrase so that it is clear.</p> <p>d. Line 34 – please clarify what behaviours you are referring to in this sentence (testing behaviours, behaviours after testing?).</p> <p>e. Line 39 – 'potential end user' or 'stakeholder' would be a better fit here instead of 'participant'.</p> <p>f. Line 44 – focused is spelled incorrectly</p> <p>g. Line 44 – please define 'regular testing'</p> <p>5. Methods:</p> <p>a. Explain the study design at the beginning of this section.</p> <p>b. Explain the sampling method used in the parent study.</p> <p>c. Provide more information about the test either here or in the Introduction.</p> <p>d. Lines 8-10 – please define acronyms when first used in the paper (PIS, PCR).</p> <p>e. More clarity is needed about the testing procedures in the parent study to understand the context and what participants' experienced. If providing test kits to all participants was not possible, an explanation is needed. Who was able to receive test kits? Also, provide more details about the procedures for testing at the work/study site. What was the setting? How often were they tested? What prompted testing – participants' decision, study request, other? Was the same test used for all participants? How many participants?</p> <p>f. Line 22 – purposive sampling was used to obtain variation in university role and department, but more explanation is needed to understand how/why these participants were selected and what type of variation was sought (1:1?).</p> <p>g. Line 29 – more details are needed about the consent procedures. Did the study require oral or written consent? How was consent obtained?</p> <p>h. Line 31 – provide more explanation of how interviews were conducted online – video or audio conference software, another method?</p> <p>i. Please provide details about the eligibility criteria for this study and the parent study.</p> <p>j. Line 37 – please clarify which study participants – all FACTS participants or the subset who participated in the qualitative substudy.</p> <p>k. Line 55 – please define the acronym PPI at first use.</p> <p>l. Please add more details about the survey data collection procedures. What software was used to develop the survey, how participants completed the survey, how data was managed and stored, data security procedures, etc.</p> <p>6. Results:</p> <p>a. When a number is used at the beginning of a sentence, it should be spelled out.</p> <p>b. Please add a Table 1 with demographic characteristics of the study population.</p> <p>c. Line 5 – please provide the number of departments and colleges.</p> <p>d. Line 11 – why does N=733 here but N=734 in the first sentence of the Results section? Please explain the discrepancy.</p> <p>e. Lines 13-15 – this sentence seems to indicate that 18 people responded to the recruitment email and all 18 people chose to</p>
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	<p>participate; however, the sentence could be improved by indicating the number of people who responded and the number of people who agreed to participate.</p> <p>f. Were any efforts made to recruit participants who had completed no tests or fewer than 3 tests to understand their barriers to testing? Please explain why or why not.</p> <p>g. The response rate was very low for both the interviews and surveys. Are there any factors that may have contributed to this low response rate? Perhaps the season in which they were conducted? Could any of these factors have biased the results?</p> <p>h. I would suggest rephrasing each theme title to include SARS-CoV-2 self-testing with LFT (or something similar).</p> <p>i. Theme 1 – did any participants discuss how frequently they tested and what prompted their testing frequency?</p> <p>j. Theme 1, line 41 – please define the acronym NHS.</p> <p>k. Theme 2, line 5 – I would suggest rephrasing this sentence to clarify if most participants accepted that the LFTs were not 100% accurate or if all participants were ‘mostly’ accepting. If the latter is the case, you would need to explain how ‘mostly’ is defined.</p> <p>l. Theme 2, lines 12-15 – this sentence should be rewritten to improve clarity. The comment about some participants being unable to recall test accuracy seems unrelated to the rest of this sentence about participants’ perceptions of the test accuracy and would fit better with the prior sentence.</p> <p>m. Theme 3, line 22 – please add ‘the’ between ‘make’ and ‘test’.</p> <p>n. Theme 3, lines 28-30 – this statement is written as if this were a fact. This sentence should be rephrased to explain that participants perceived self-testing at home to be easier than at the site.</p> <p>o. Theme 3, line 32 – this sentence indicates there was a video with instructions, but the video is never mentioned in the Methods section as part of study procedures. Please be sure to include all study procedures in the Methods section. Every detail is important to understand how the study was implemented.</p> <p>p. Theme 3, line 37 – please clarify what participants meant by ‘physical sensation’.</p> <p>q. Theme 4, lines 5-7 – I would suggest removing ‘especially if they had not been going out much’, as it’s misleading as written. As written, it seems to indicate that participants’ concerns about site testing were heightened if they had not been going out much, though I am not certain that you would be able to make that conclusion.</p> <p>7. Discussion:</p> <p>a. Page 9, line 33 – the study procedures appear to use self-administered testing in an auditorium or lecture hall, as described in a quote above, but these procedures are not described in the Methods section. Since participants have specific concerns about the way testing was conducted in this study, it is imperative that the authors thoroughly describe the testing procedures.</p> <p>b. Page 9, line 37 – please define ‘regular testing’ – how frequently and what prompted testing?</p> <p>c. Page 10, lines 7-9 – this is redundant, as it is already mentioned in the beginning of the paragraph. Please remove.</p> <p>d. Strengths and limitations – also mention that all participants had completed 3 or more tests and that the sample failed to capture feedback from participants who had not completed any testing during the study period. It would be important to also note that future studies should understand barriers to testing for participants who did not use the test even when provided with the opportunity and resources to self-test.</p> <p>The reviewer provided a marked copy with additional comments.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1	The paper submitted by Marta Wanat et al aims to provide the first insights on perceptions of asymptomatic COVID-19 self-testing among university students and staff. This study offers new perspectives on COVID-19 self-testing, which have urgent implications for scaling and sustaining asymptomatic screening for COVID-19. Though the study's aims and findings are unique and may be urgently needed for guiding future testing strategies, the paper requires several modifications to improve the clarity.	Thank you for your kind feedback.
Reviewer 1	Abstract: The first sentence in the Methods section is not clear and appears to be missing words	Thank you for your comments. We have now revised the abstract according to the journal requirements. Please see lines 32-52.
Reviewer 1	Article summary: The second bullet point should read 'addressed' instead of 'address'.	Thank you. This section has been revised.
	General revisions: a. Any time the acronym LFT is used, 'test' or 'testing' should not follow the acronym, as it is redundant. Please revise throughout the paper.	Thank you. This has been amended throughout.
Reviewer 1	Many sentences throughout the paper are missing periods. Please revise throughout	Thank you. This has been corrected.
Reviewer 1	The background information on SARS-CoV-2 is weak. This section would be significantly improved by providing more background on the disease, current testing modalities, and the potential impact of asymptomatic self-administered screening. Also, more information could be provided here on the specific LFT used in this study (e.g., description of test, materials required, how test is performed, sensitivity, specificity).	Thank you for this comment. We have substantially expanded on these issues in the introduction, providing more details on the background on the disease, testing and tests. Please see lines 71-80 and 85-95.
Reviewer 1	The sentence in lines 27-31 (third sentence of second paragraph) is not clear. I'm not sure what you are trying to convey here. Please rephrase it.	Thank you for this comment. We have revised this sentence (lines 99-101)
Reviewer 1	The sentence in lines 31-32 (fourth sentence of second paragraph) is also not clear. Repeat testing cannot improve the test's sensitivity, rather it could potentially increase the number of asymptomatic infections identified despite the test's poor sensitivity. I believe that is what you are trying to convey, but please rephrase so that it is clear.	Thank you for this comment. We have added a sentence in the paragraph related to testing on this. Please see lines 90-93.

Reviewer 1	Line 34 – please clarify what behaviours you are referring to in this sentence (testing behaviours, behaviours after testing?).	Thank you for this comment. We clarified that this related to the behaviour related to use of tests and following the test (lines 101-102)
Reviewer 1	Line 39 – ‘potential end user’ or ‘stakeholder’ would be a better fit here instead of ‘participant’.	Thank you for this comment. We changed this to “end user (line 106).
Reviewer 1	Line 44 – focused is spelled incorrectly	Thank you. This has been corrected (line 108)
Reviewer 1	Line 44 – please define ‘regular testing’	Thank you. This is defined as “more than once” (line 108-109)
Reviewer 1	Methods: Explain the study design at the beginning of this section.	Thank you. This has been added (line 114)
Reviewer 1	Explain the sampling method used in the parent study	Thank you for this comment. We have provided more details on the recruitment and sampling of the parent study (see lines 117-132)
Reviewer 1	Provide more information about the test either here or in the Introduction	Thank you. We have provided more information about the test in both the introduction (lines 85-95) and the methods (166-170)
Reviewer 1	Lines 8-10 – please define acronyms when first used in the paper (PIS, PCR).	Thank you for this comment. We have defined them now (lines 144 and 76)
Reviewer 1	More clarity is needed about the testing procedures in the parent study to understand the context and what participants’ experienced. If providing test kits to all participants was not possible, an explanation is needed. Who was able to receive test kits? Also, provide more details about the procedures for testing at the work/study site. What was the setting? How often were they tested? What prompted testing – participants’ decision, study request, other? Was the same test used for all participants? How many participants?	Thank you for this comment. We have added more information about the training, and the testing procedures. Please see lines 135-146 and 155-165.
Reviewer 1	Line 22 – purposive sampling was used to obtain variation in university role and department, but more explanation is needed to understand how/why these participants were selected and what type of variation was sought (1:1?).	Thank you for this comment. We have provided more information on this in the methods (lines 175-177), and strengths and limitations (lines 366-370).
Reviewer	Line 29 – more details are needed about the consent	Thank you for your comment.

1	procedures. Did the study require oral or written consent? How was consent obtained?	We have provided more information about the consent procedure in relation to the main study as well as interviews and survey. Please see lines 123-125, 180-183 and 191-193 respectively.
Reviewer 1	Line 31 – provide more explanation of how interviews were conducted online – video or audio conference software, another method?	Thank you. This has now been added. Please see lines 183-185.
Reviewer 1	Please provide details about the eligibility criteria for this study and the parent study.	Thank you for this comment. We have added eligibility criteria for the interview and parent study. Please see lines 128 -132 and 173-174.
Reviewer 1	Line 37 – please clarify which study participants – all FACTS participants or the subset who participated in the qualitative substudy.	Thank you. We clarified in the text that this was all FACTS participants. See line 190-191.
Reviewer 1	Line 55 – please define the acronym PPI at first use.	Thank you, This has now been provided (line 205)
Reviewer 1 Reviewer 1	Please add more details about the survey data collection procedures. What software was used to develop the survey, how participants completed the survey, how data was managed and stored, data security procedures, etc.	Thank you. This has now been added. Please see lines 189-194.
Reviewer 1	When a number is used at the beginning of a sentence, it should be spelled out.	Thank you. This sentence has now been amended (line 217).
Reviewer 1	Please add a Table 1 with demographic characteristics of the study population	Thank you. We have added a table 1 with the characteristics of the main study participants. Basic summary is also provided in the text (lines 213-215)
Reviewer 1	Line 5 – please provide the number of departments and colleges	Thank you. We have clarified a number of sites in lines 117-122 and in lines 210-212.
Reviewer 1	Line 11 – why does N=733 here but N=734 in the first sentence of the Results section? Please explain the discrepancy.	Thank you for this comment. This was a spelling mistake and both numbers should have read 734 (line 217 corrected).
Reviewer 1	Lines 13-15 – this sentence seems to indicate that 18 people responded to the recruitment email and all 18 people chose to participate; however, the sentence could be improved by indicating the number of people who responded and the number of people who agreed to participate.	Thank you for this comment. We have clarified. Please see lines 218-219.

Reviewer 1	Were any efforts made to recruit participants who had completed no tests or fewer than 3 tests to understand their barriers to testing? Please explain why or why not.	We had not made an effort to recruit participants who completed fewer than 3 tests. At the point of recruitment, we were not checking how many tests participants have completed. We have added this as a limitation (lines 360-364).
Reviewer 1	The response rate was very low for both the interviews and surveys. Are there any factors that may have contributed to this low response rate? Perhaps the season in which they were conducted? Could any of these factors have biased the results?	Thank you for this comment. We have added this as a limitation of the study. We also reflected on the potential factors contributing to the low response rate (Lines 372-375).
Reviewer 1	I would suggest rephrasing each theme title to include SARS-CoV-2 self-testing with LFT (or something similar).	Thank you for this comment. We clarified in the results section that all themes relate to SARS-CoV-2 self-testing with LFT. Please see line 227-228.
Reviewer 1	Theme 1 – did any participants discuss how frequently they tested and what prompted their testing frequency?	Thank you for this comment. This is briefly explored in theme 4. We provided additional information in relation to this issue in that theme as well (see lines 318-320).
Reviewer 1	Theme 1, line 41 – please define the acronym NHS.	Thank you. This has now been clarified (see line 236).
Reviewer 1	Theme 2, line 5 – I would suggest rephrasing this sentence to clarify if most participants accepted that the LFTs were not 100% accurate or if all participants were 'mostly' accepting. If the latter is the case, you would need to explain how 'mostly' is defined.	Thank you. We did indeed mean that participants were mostly accepting. This is linked to the sentence which follows this statement; that participants were mostly accepting as they saw the test as one of the measures to try to avoid spreading the virus. We have clarified in the text (see lines 249-251)
Reviewer 1	Theme 2, lines 12-15 – this sentence should be rewritten to improve clarity. The comment about some participants being unable to recall test accuracy seems unrelated to the rest of this sentence about participants' perceptions of the test accuracy and would fit better with the prior sentence.	Thank you for your comment. We have made the change. See lines 251-255.
Reviewer 1	Theme 3, line 22 – please add 'the' between 'make' and 'test'.	Thank you for this comment. This has been added (line 289)
Reviewer	Theme 3, lines 28-30 – this statement is written as if	Thank you for this comment.

1	this were a fact. This sentence should be rephrased to explain that participants perceived self-testing at home to be easier than at the site.	This has been rewritten now, to highlight that this was indeed participants' view (see lines 292-293).
Reviewer 1	Theme 3, line 32 – this sentence indicates there was a video with instructions, but the video is never mentioned in the Methods section as part of study procedures. Please be sure to include all study procedures in the Methods section. Every detail is important to understand how the study was implemented.	Thank you for your comment. We have provided more details on the training and study procedures. See lines 122-123, and 134-148.
Reviewer 1	Theme 3, line 37 – please clarify what participants meant by 'physical sensation'	Thank you. We have clarified this (lines 298-300).
Reviewer 1	Theme 4, lines 5-7 – I would suggest removing 'especially if they had not been going out much', as it's misleading as written. As written, it seems to indicate that participants' concerns about site testing were heightened if they had not been going out much, though I am not certain that you would be able to make that conclusion.	Thank you for your comment. This was indeed what participants meant. They felt that since they were not leaving their accommodation much, an outing to do the test, was perceived as "quite risky". We have provided a longer quote and an additional quote in order to clarify this point (lines 311-318).
Reviewer 1	Discussion Page 9, line 33 – the study procedures appear to use self-administered testing in an auditorium or lecture hall, as described in a quote above, but these procedures are not described in the Methods section. Since participants have specific concerns about the way testing was conducted in this study, it is imperative that the authors thoroughly describe the testing procedures.	Thank you for this comment. We have added details in the methods regarding the testing procedure (lines 156-166).
Reviewer 1	Page 9, line 37 – please define 'regular testing' – how frequently and what prompted testing?	Thank you. We have clarified that this was weekly (line 323 and 332). We also clarified in the methods that the aim of the study was to offer testing on a weekly basis (line 122).
Reviewer 1	Page 10, lines 7-9 – this is redundant, as it is already mentioned in the beginning of the paragraph. Please remove.	Thank you. We have removed this sentence.
Reviewer 1	Strengths and limitations – also mention that all participants had completed 3 or more tests and that the sample failed to capture feedback from participants who had not completed any testing during the study period. It would be important to also note that future studies should understand barriers to testing for participants who did not use the test even when provided with the opportunity and resources to self-test.	Thank you for this comment. We have added this in the Strengths and Limitations section (lines 359-365). The mean number of tests of interview and survey participants when compared with the main study participants has been previously highlighted

	(see lines 359-361).
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VERSION 2 – REVIEW

REVIEWER	Ashley Bardon University of Washington, Epidemiology
REVIEW RETURNED	10-Aug-2021

GENERAL COMMENTS	<p>Dear Authors,</p> <p>The manuscript revisions have brought much more clarity to the methods of this research study, and the added Tables are very helpful for understanding the study population. Additionally, the revisions to the Strengths and Limitations section are very helpful for understanding the study's limitations. Please find below some additional suggestions for improving this manuscript.</p> <p>Overall: Please double check to make sure you have not exceeded the journal's maximum word count. There are some areas of redundancy that occur in the paper if any text needs to be cut.</p> <p>Line 187: This line should be moved to the data analysis section: "NVivo 12 was used to facilitate data analysis."</p> <p>Line 215: Define standard deviation before first use of SD.</p> <p>Line 222: 'of' is spelled incorrectly</p> <p>Line 313: Suggest rephrasing the part of the sentence about 'not been going out much' for clarity, as this phrase could also be misperceived as not going outside frequently. Perhaps explaining it as 'attempting to self-isolate', 'avoiding large gatherings', 'following national guidelines for preventing SARS-CoV-2 infection', or 'social distancing'.</p>
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