**Author’s response to reviews**

**Title:** Perspective of healthy asymptomatic patients requesting general blood tests from their physicians: A qualitative study

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**Author’s response to reviews:**

March 26, 2019

Professor Tovah Honor Aronin,
BioMed Central, USA
Editor-in-Chief, BMC Family Practice

Dear Professor Honor Aronin,

Submission of a Revision for Manuscript FAMP-D-18-00483

Enclosed, please find our revised manuscript ID FAMP-D-18-00483, entitled "Perspective of healthy asymptomatic patients requesting general blood tests from their physicians: A qualitative study”, submitted for possible publication in BMC Family Practice.

We thank you and the reviewers for the useful comments, which have significantly helped to improve our manuscript.

Sincerely,

Michal Shaked, MD and Inbar Levkovich, Ph.D.
Reviewer 1

1. I would add reference to the recent BMJ paper about rising pathology testing rates. It might also be worth adding a reference to one or two of the key overdiagnosis papers?

Thank you for suggesting more references. We have added new references

#16, #17, #18:

Page 3: “Unnecessary tests may also lead to overdiagnosis and prompt unnecessary treatment [16], the cost of which is estimated at more than 200 billion dollars every year in the United States [17]. Furthermore, discussing test results with patients is time consuming. Time spent discussing the results of blood tests that were unnecessary to begin with might be better utilized discussing evidence-based recommended tests and lifestyle modifications as a means of disease prevention.

In the past two decades, blood testing in the ambulatory setting has markedly increased [18-20]."


2. Methods: I would remove the information about the demographic characteristics of the sample and add this to the results section.

We have moved the participants' demographic characteristics from the Methods section to the beginning of the Results section:

Page 8:” Fifteen patients participated in this study: ten males and five females. Eleven of the patients were between the ages of 20 and 35, and four were between the ages of 35 and 50. Most participants were urban clinic patients (Table 2)."
3. Please add something about translation - as the interviews were conducted in Hebrew and the quotes were provided in English I assume someone translated these? At what stage was this done and by whom?

Thank you for bringing this to our attention. Data on the translation process is now included:

Page 6: “The interview was set within two weeks of referral. The interviews were conducted in Hebrew, recorded and translated into English. Each translation was verified by two native English speakers, one of whom is a certified translator.”

4. Also how was the sample selected - was purposive sampling used to ensure a range of age and gender?

We have expanded the description of the sample selection process in the Sample and Population section:

Page 6: “Based on the purposeful sample approach, we chose clinics that best represented Israel's heterogeneous population in terms of age, gender, education and socioeconomic status, and that could best teach us about the studied phenomenon [42].”

5. Results: The first paragraph of the results should give a brief summary of the demographics of the sample. I would also like to see a simple descriptive table 1 with details of the gender, age categories, practice type and location (rural/urban?) of the selected sample.

Thank you for bringing these to our attention. We have added the data in Table 2. The beginning of the Results section now includes the description of the population demographics.

Page 8:” Fifteen patients participated in this study: ten male and five female. Eleven of the patients were between the ages of 20 and 35, and four were between the ages of 35 and 50. Most participants were urban clinic patients (Table 2).

6. Discussion: The discussion raises many interesting points, but would be easier to follow with a clearer structure (with or without subheadings) as it is occasionally slightly rambling. I would expect the first paragraph to summarise the results (and I would suggest adding the important statement here 'Our study shows that many patients believe blood tests provide information about their health status. The accepted medical approach - that blood tests are unnecessary when a patient feels well - does not concur with patients' strong need to know what is going on inside their bodies.')

Thank you for bringing these issues to our attention. We have now rewritten the Discussion section, including adding a first paragraph that summarizes the results:
The objective of the present study was to examine the perceptions of healthy asymptomatic patients who request general blood tests from their family physicians. The results demonstrate three main incentives for requesting blood tests: 1) the belief that periodic blood tests are important and that requesting them is the responsible thing to do as an integral part of health maintenance; 2) the need for external validation of the body’s inner workings; and 3) anxiety due to exposure to illness in a close acquaintance. Our study shows that many patients believe blood tests provide information about their health status. The accepted medical approach—that blood tests are unnecessary when a patient feels well—does not correspond with patients’ strong need to know what is going on inside their bodies.

I would then like to see a clear paragraph on comparisons with literature, strengths and limitations, then implications and conclusions.

We have rewritten the Discussion section, and added Comparison to the literature, Implications, Strengths and Limitations, and Conclusions in separate sections:

The results of the current study reflect a substantial gap between patients’ beliefs about general blood tests and current accepted medical standards. On one side of this gap are the family physicians. Medical evidence-based knowledge shows that general blood tests are not useful in early detection of disease [4, 5]. Early diagnosis is not possible for every disease, nor will it affect the outcome of every disease. Doctors are aware that blood test results are statistical and have standard deviations. Deviation from the norm explains a large part of the results that fall outside the normal range. Doctors also understand that every test may entail undesirable consequences, including waste of time and money, patient anxiety, and further testing that may entail unnecessary radiation, contrast material or invasive procedures [3-5]. On the other side of the gap are the patients, who, according to the results of this study, wish to maintain their health and believe that periodic blood tests have the power to validate their health or diagnose early stages of disease before symptoms appear. They believe that early diagnosis is important, feasible and life-saving and that blood tests can achieve this. These results are in line with previous studies [36-38] and add the aspect of getting periodic blood tests as being responsible for one's own health.

In terms of limitations I suggest that additionally it should be noted that expectations of blood tests may be culturally bound, and that the perceptions of people in Israel may differ from other countries. Additionally, the fact that patients who were sampled had recently requested screening tests means that they were by definition, likely to have a stronger belief in screening blood tests. This means the views expressed may not reflect the views of the general population. The benefit of this approach however is that by sampling healthy people who requested blood tests we can better understand these requests.
Your comment was indeed helpful. We have added these important aspects to the Limitation section. We also explained the possible benefit of our selection sample:

Page 6: "This method of recruiting patients was chosen in order to focus on those patients who consider blood tests important enough to warrant a visit to their physician specifically for this purpose, as this is the target population."

Page 18: "In addition, patients’ attitudes regarding routine blood tests are influenced by cultural and social trends, which vary in different countries and probably also in different areas in Israel. Additionally, the fact that patients who were sampled had recently requested screening tests means that they were likely to have more faith in screening tests than the general population."

9. One additional tiny point; the acronym HMO is not clear to me - please define clearly.

We omitted the acronym HMO and used the term "health organization" instead:

Page 6: “The study was approved by the Institutional Review Board of the Haifa and Western Galilee District of Clalit Health Services (the largest public health organization in Israel)."

Reviewer 2

1. The paper presents very important topic for practical work of a general practitioner. It focuses on the views of the patients about their reasons for the requests for blood tests. There has been some qualitative research on this topic, so, is anything new to be found?

Thank you for this important comment. Our review of the literature revealed 3 qualitative studies that examined the reasons patients request tests. One is from 1986 (reference 34), another one is from 2011 (reference 35). Both have examined the reasons for asymptomatic patients’ requests for a general check-up, but not specifically for blood tests. The third study (reference 36) was conducted on 2006, and focused on the specific question of why patients want their blood tested, but their inclusion criteria did not specify asymptomatic patients, and only four patients actually requested tests for screening purposes. In light of your important remark we emphasized the novelty of our results, specifically the first two themes, that, to the best of our knowledge, were not described in this context before:

Page 15: "Two qualitative studies examined the reasons that asymptomatic patients request general check-ups (though not specifically blood tests). These studies found that in many cases these patients had covert reasons, such as psychosocial reasons or health concerns [34, 35]. This is in line with the third theme demonstrated in our results—namely anxiety due to illness of a close acquaintance—and exemplifies the need for doctors to be aware of and sensitive to this possibility when faced with a patient who requests tests. We found only one previous qualitative study that focused on the specific question of why patients want to have their blood tested. In this study, 22 patients from five clinics were interviewed, resembling our sample. As opposed to our
study, however, the inclusion criteria did not specify asymptomatic patients, and only four patients requested tests for screening purposes [36]. In line with our findings, this study found that patients overestimated the ability of blood tests to confirm good health and to detect serious conditions at an early stage. The study's results also showed that these beliefs were intensified by the social environment and by the media. The consistency of findings after a period of over a decade and in a different geographical and cultural setting strengthens the validity of both studies. To the best of our knowledge, no previous studies described the sense of responsibility described by patients in our study to have their blood tested periodically as part of their effort to maintain their health. In reviewing the literature we also did not find patients' need to monitor their inner body functions as a motive for requesting blood tests. We assume that these two themes have emerged over the past few years alongside cultural, social and technological trends”.

Page 5: “In Israel, patients’ reasons for requesting blood tests have not been studied to date.”

2. Overall, the paper is too long for what it has to say.

We have shortened the paper and the number of words was reduced from 5062 to 4651.

3. Some important aspects are missing: such as experience of the patients which supports - or not - the request.

That is indeed a limitation of our study and an opportunity for future research. We included that aspect to the limitations of our work:

Page 18: "The patients' experience after taking the blood tests was not directly addressed in the interview, as we focused mainly on the reasons for the request itself. Future research is needed to explore this aspect."

4. It also misses the opportunity how the patients perceive doctor's role and if they want physician's advice in their wish to perform a "preventive" blood test or they just want to be referred by their own decision?

Thank you for bringing to our attention the need to elaborate more on this cardinal issue. We elaborated in the Results section the views that patients shared with us about how they perceive the role of the physician when they request a referral for blood test:

Page 10: "Most of the patients who expressed a sense of responsibility for early diagnosis through periodic blood tests and believed these tests were essential to their health stated that they expected their doctor to comply with their request. Many of the patients received an explanation from their physician about the blood tests being unnecessary but still obtained a referral. Most patients stated they were interested in hearing the doctor’s view but expected to obtain the
referral even after the doctor explained why the requested tests are unwarranted. One patient who did not obtain a referral after a thorough explanation decided to leave her physician.

5. Introduction: presents the topic and the literature well.

Thank you.

6. Methods: please correct the citation 37 in the text.

Thank you for bringing this to our attention. Citation 37 (now 41) has been corrected:

Page 5: Qualitative phenomenological research seeks to identify phenomena through how they are perceived by the actors in a situation. It entails studying individuals' lived experiences of a phenomenon and reducing these experiences to a description of their universal essence [41].

7. The researchers promise to explore experience of the patients about testing, but the paper is all about the opinion of the patients. Did they have the experience or did they ask for a blood test for the first time? Did the opinion support the experience? Or change it?

Thank you for this important comment. We have now added the data on how many of the interviewees received the requested referral, and how many of those actually took the test by the time of the interview. Patients' previous experience of having their blood tested was not directly addressed in the interviews, but it was raised by most participants who shared they have their blood tested periodically, as it gives them a sense of doing the responsible thing. We also emphasized that the focus of our present study was the perspective of the patient when they came for a blood test referral, and not the experience after taking the test. Therefore, we omitted the word "experience", and used words as "perspective" or "view". We included this point to the limitations of the study:

Page 5: "Considering the paucity of current research on the perspective of asymptomatic patients who request general blood tests from their family physician and the potential costs and risks of unnecessary tests, we conducted a qualitative study to improve our understanding of these patients' perceptions and beliefs regarding blood tests."

Page 13: “The objective of the present study was to examine the perceptions of healthy asymptomatic patients who request general blood tests from their family physicians”.

Page 9: "Many of the interviewees reported perceiving themselves as healthy. In order to maintain their health, they perform periodic blood tests. Most patients felt that once a year seemed like a reasonable period of time."
Page 18: "The patients' experience after taking the blood tests was not directly addressed in the interview, as we focused mainly on the reasons for the request itself. Future research is needed to explore this aspect."

8. Sample and population: please describe inclusion criteria precisely: the main inclusion criterion was that they asked for a blood test at this checkup. I suggest to delete a list of chronic medical condition, because it is not needed and the list is not complete (for example chronic lung diseases are not mentioned and I believe they were also an exclusion criterion).

Thank you. We agree and decided to delete the list of chronic medical conditions:

Page 6: "Inclusion criteria for the study were individuals aged 20-50, Hebrew speakers, otherwise healthy and asymptomatic who asked their family physician for a blood test referral."

9. Please describe the participants in the results. The important characteristic would also be if they - being asymptomatic and healthy- asked and performed the blood test in the past.

Thank you for bringing these to our attention. We added the data in Table 2. The beginning of the Results section now includes the description of the population demographics. We also added the data on how many of the participants received the referral and took the blood test:

Page 8:” Fifteen patients participated in this study: ten males and five females. Eleven of the patients were between the ages of 20 and 35, and four were between the ages of 35 and 50. Most participants were urban clinic patients (Table 2). Twelve patients obtained the requested referral from their physician. Six of them had already completed the blood tests before the interview took place."

10. Research procedure: the description of the interviewers (in the Research Tools…) should be put in the line 42.

We have added the description of the interviewers in the Research Tools section:

Page 7: “Three interviewers conducted the interviews. They were selected based on their previous experience and expertise. Two of the interviewers were family medicine practitioners, and one was a family medicine resident. Interviewers received training in qualitative interviewing.”

11. Research Tools and Instruments: I find that some important aspects are not addressed in the interview guide and therefore not in the results and specifically lacking to back up the discussion: one aspect is patients (possible) experience and the other is patient decision in the light of communication with the physician. Where is the physician in this picture?
Did he say anything? Did a patient discuss his request? It would be very useful if by asking the patients we found out how they perceive doctors reflection on their request. There is a citation reflecting this (pt No14), but does not come out much in the results.

Regarding patient's experience, please refer to Comment 7 above.

Regarding the interaction between the patient and the physician, we did ask the participants about the discussion they had with their physician when requested the blood test referral. We added the topic to the Interview Guide in table 1, and elaborated further in the Results section. Further research is needed to broaden our understanding of the effect of the doctor's opinion on the patients' view, as we discuss in the Limitation section.

Table 1: "11. How did your family physician react to your request for general blood tests? How did you feel about his/her response? Do you feel his/her response affected your relationship with him/her? how?".

Page 10: “Most of the patients who expressed a sense of responsibility for early diagnosis through periodic blood tests and believed these tests were essential to their health stated that they expected their doctor to comply with their request. Many of the patients received an explanation from their physician about the blood tests being unnecessary but still obtained a referral. Most patients stated they were interested in hearing the doctor’s view but expected to obtain the referral even after the doctor explained why the requested tests are unwarranted. One patient who did not obtain a referral after a thorough explanation decided to leave her physician.”

Page 18: “Quantitative studies may provide additional data, including the effect of the doctor's explanation on the patient's view.”

12. Data analysis: please describe the stages of the analysis clearer in presenting the steps of the analysis. Did you perform coding first? What/where was the place of subcategories?

Thank you. We took the opportunity to add relevant information to the Data Analysis section and to describe the process in a clearer way:

Page 7: “When the interviews were completed, they were transcribed verbatim and the data were analyzed thematically [43]. Data categories were coded in the following stages: 1) Open coding: Two researchers separately read each interview transcript line by line and jotted down notes to capture and identify initial units of meaning (categories) emerging from the data. Commonalities and differences across interviews were evaluated and themes were regrouped to represent major content areas that received considerable attention across participants. 2) The researchers then reviewed the larger themes, discussed disparities and sought agreement concerning theme content and interpretation of meaning. 3) Axial coding: In a second reading of the transcripts, the researchers gradually detected associations between the themes and sub-themes related to context and content. They compared all completed interviews so as to consolidate meaning and arrive at a theoretical construct. 4) Integration: The researchers identified the study’s central themes. The core themes that emerged from the data were reordered conceptually and placed
back into context, making it possible to analyze and integrate large amounts of data and to generate abstractions and interpretations [43]."

13. Results are presented by simple descriptive thematic analysis. Presentation of the results is much too long, disperse and repeating. Please describe results in a systematic and shorter way. For example: Theme 1 and 2 are partly overlapping and some citations presented in theme 1 could be also in theme 2 (for ex. Citation 10 in theme 2 could be in theme 1 as well). For example in theme 1 the routine blood testing is described as a responsibility to a person himself and also as a way to early detect a disease, which is also a part of the theme 3. Also, in this theme some patient views about the role of a physician are briefly mentioned.

We have now shortened the Results section from 2118 words to 1469 words.

We emphasized each theme's main points, and the fact that in all three themes early detection was desired, but for different reasons. We omitted citations that did not represent the theme clearly enough:

Page 8: "Qualitative analysis of the interviews revealed three central themes: The first theme demonstrates a sense of responsibility on the part of young, healthy persons, together with a belief that they should have periodic blood tests as an integral part of their health maintenance. The second theme relates to the patients' need to receive external and reliable validation about what is happening inside their bodies. The third theme deals with the effect of a serious illness experienced by a family member, friend or acquaintance on the patient’s desire to perform tests. In all three themes patients desire early detection of latent conditions, but the reasons differ between themes."

14. Discussion: It is too long and in some parts does not reflect the results of the study (such as p18, line 37-54, p19, line 8-40: true, but very briefly based on the results of this study). On p 20 line 1-12- again - not reflected in the results. Were patients faced with these facts during the visit to the office and later during the interview? It seems that the interviews should go deeper into the topic, reasons, views of the patients about the specific points that are discussed in this part of the paper. The study would be much better if patient beliefs would be confronted with the doctor's knowledge of the usefulness of the procedure. It would also help to the reader to describe if the patients have to come to the practice with the request for a lab test in order to have the expenses covered by the health insurance? Is the agreement of a physician needed in that sense?

Thank you for pointing out this confusion. We amended the Discussion section (pages 13-19). We omitted parts that did not directly reflect the results of the study. We elaborated further on the interaction between the patient and the physician, and we emphasized that further research is needed to examine the effect of the doctor's explanation on the patient's view. We added a short paragraph on how the health care system in Israel works:
Page 16: "As the results of this study show, most patients obtained the requested referral from their physician. Even physicians who took the time to thoroughly explain why the tests are unwarranted eventually gave the referral. Most patients were willing to hear the physician's view, but nonetheless expected their wish to be fulfilled."

Page 5: "Israel's primary health care system is public and based on mandatory, government-subsidized health insurance. The cost of nearly all blood tests is covered by health insurance. A patient may request tests either directly during a doctor visit or via online or telephone request. Requests for most tests must be authorized by a physician."

Page 18: "There are a few limitations to this study. The sample size is quite small. Further studies among a wider population are warranted to shed more light on the matter. Quantitative studies may provide additional data, including the effect of the doctor's explanation on the patient's view."

15. Limitations: Please expand the limitations.

Thank you. We agree, and have amended the Limitations section accordingly:

Page 18: "There are a few limitations to this study. The sample size is quite small. Further studies among a wider population are warranted to shed more light on the matter. Quantitative studies may provide additional data, including the effect of the doctor's explanation on the patient's view. In addition, patients' attitudes regarding routine blood tests are influenced by cultural and social trends, which vary in different countries and probably also in different areas in Israel. Additionally, the fact that patients who were sampled had recently requested screening tests means that they were likely to have more faith in screening tests than the general population. The patients' experience after doing the blood tests was not directly addressed in the interview, as we focused mainly on the reasons for the request itself. Future research is needed to explore this aspect".