

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Self-perceived psychosomatic health in Swedish children, adolescents, and young adults: An Internet-based survey over time
AUTHORS	Friberg, Peter; Hagqvist, Curt; Osika, Walter

VERSION 1 - REVIEW

REVIEWER	Mari Hysing phd, PsyD Unihealth, Bergen , Norway I have no competing interest.
REVIEW RETURNED	27-Jan-2012

THE STUDY	The development of self-perceived psychosomatic health is an important subject, likewise the use of internet based assessment in asesseing this. . However, the focus of the paper is somewhat unclear and a more focused approach could improve the manuscript. Either focusing on internet assessment, and write the introducuon and run statistical analysis to answer research question or focus (is the group representative?, are the psychometric properties of the instruments comparable to other paper-pen studies and so on, other studies using internet assessment and disussing pro and cons of this alternativ). Or discussing age and gender related psycosomatic concerns more specifically. The introducion could then cover more of this litterature and previous findings and more appropriate analysis.
RESULTS & CONCLUSIONS	One of the research questions is if psychosomatic helath improves over time. However, the results focus more on gender effects , and do not appropriately control for confounders when assessing time-effects. If gender effects are the main focus, the results should be discusses in relation to previous litterature. The tables would communicate better if they highlight the most important findings. Sumvariables instead of showing percentages for all reponses is one posiibility. Highlighting the main finding, andr unning more regression analysis and less descriptive data could also improve the readability and communicate your findings better.

REVIEWER	Rafael Mikolajczyk Senior scientist Bremen Insitute for Prevention Research and Social Medicine, Bremen, Germany
-----------------	---

REVIEW RETURNED	27-Jan-2012
------------------------	-------------

THE STUDY	The paper is unfocussed. Clearly some information is there, but technical deficiency of the description is obscuring this fact.
RESULTS & CONCLUSIONS	The message is not clear because the research question is not clear.
GENERAL COMMENTS	The paper surely addresses relevant research question and uses a relatively novel approach. Nevertheless, I have substantial concerns regarding the technical quality of the paper. The paper is unfocussed – it is not clear if the main message are the results regarding self-perceived health or the description of methodology of the online survey (for example conclusions start with pointing out methodological aspects). It is not clear in which way the study supplements the results of previous studies. Further, it has to be justified why the data collection was conducted in the described way – in the moment it seems to be more a game rather than a rigorous study of methodology for the online survey. Many aspects are not well expressed and there are linguistic errors – making a substantial rewriting and editing necessary.

VERSION 1 – AUTHOR RESPONSE

Response to reviewer: Rafael Mikolajczyk,
Bremen Institute for Prevention Research and Social Medicine, Bremen,
Germany

“The paper is unfocussed. Clearly some information is there, but technical deficiency of the description is obscuring this fact. The message is not clear because the research question is not clear.”

Our research question(s) have now been more explicitly explained and defined both in the summary and introduction parts. The introduction has been rewritten. The summary now reads:

Summary

Article focus:

- Examining self-perceived health and stress in large cohorts of children, adolescents, and young adults
- Examining whether psychosomatic health deteriorated in adolescents between 2007 and 2010.
- Using a large web-based community on the Internet to investigate self-perceived psychosomatic health in Swedish youth.

Key messages

- A high percentage of young subjects responded that they felt stressed very often/often, and the numbers were higher for females than for males.
- Older teenaged females had more psychosomatic complaints than males did.
- Both sexes reported a slightly worse self-perceived health status in 2010 than in 2007.
- Novel internet-based community site surveys are feasible for assessing self-perceived health in the young.

Strengths and limitations

- Very large cohort of both children, adolescents and young adults from the whole of Sweden
- All subjects responded completely voluntarily.
- There may be a selection bias, given that we do not know the psychosomatic health in subjects who are not logged onto the website.

- Participation in the survey was completely anonymous; thus, we could not perform additional interviews to study the web questions' validity in this population.

The introduction now reads, also including new references:

....Importantly, the development of stress reactions in young people is, to a great extent, gender dependent (ref 4,5,6,7). Mid section 1st paragraph, page 4.

Given the recent development of higher frequencies of reported ill health in children, adolescents, and young adults, particularly older teenage girls, in Sweden and internationally (8-13), the aim of this study was to obtain reliable information both at a given time point and as a trend analysis about perceived health in Swedish subjects aged 10 to 24 years. To achieve this purpose, we needed a strategy that would feasibly allow us to ascertain a large number of respondents. Donker et al. (14) used screening questionnaires for common mental disorders and recommended that such questionnaires be administered via the Internet, which offers quick and easy access to a large number of users at a low cost. The screening must be brief, as subjects are more likely to undergo screening if it is short, quickly completed, and easy to read (14).. 2nd paragraph, page 4, Vide infra.

“The paper surely addresses relevant research question and uses a relatively novel approach. Nevertheless, I have substantial concerns regarding the technical quality of the paper. The paper is unfocussed – it is not clear if the main message are the results regarding self-perceived health or the description of methodology of the online survey (for example conclusions start with pointing out methodological aspects). It is not clear in which way the study supplements the results of previous studies. Further, it has to be justified why the data collection was conducted in the described way – in the moment it seems to be more a game rather than a rigorous study of methodology for the online survey. “

We understand the confusion, and apologise for our mixing the messages. Our first and most important goal was and always will emanate from the situation of the young, i.e. from the medical/health perspective. The Internet is just a tool (albeit a valuable one) that helps in getting access to a large population, making a more true picture of the prevailing psychosomatic status among the young. In addition, we used validated questionnaires, which have substantial documentation (refs Hagqvist, also co-author).

Thus our main and first message is the description of psychosomatic symptoms among the young with a wide range of age in Sweden, and over time. The second, and subordinate message is to demonstrate the feasibility of a web-based self-assessment questionnaire presented to members of a “social” community. In order to increase clarity, this sequence of message importance is now followed consequently through the paper.

As the data collection method has its specific strengths and limitations we are convinced that in order to understand the presentation of the data on psychosomatic symptoms, the reader needs to know how the data collection was performed.

The parts: “introduction, research questions and conclusion”, now have a structure starting with the psychosomatic symptom issues in the young, and are followed by text regarding the web based community survey method. Hopefully, the readers will get the main message by this rearrangement.

Further, we have added more data and discussion to the “introduction and discussion” parts of previous studies and added some valuable references, which are put in context with the present

study. A more thorough description of the rationale for the methodology for the online survey has now been included:

....Importantly, the development of stress reactions in young people is, to a great extent, gender dependent (ref 4,5,6,7), page 4, 1st paragraph). Hence, it seems plausible that several factors, both psychological and physical, play important roles in children's well-being and ill health, with salient implications for future health and disease (new ref 7), page 4 end 1st paragraph).

... Donker et al. (14) used screening questionnaires for common mental disorders and recommended that such questionnaires be administered via the Internet, which offers quick and easy access to a large number of users at a low cost. The screening must be brief, as subjects are more likely to undergo screening if it is short, quickly completed, and easy to read (14). Page 4, end 2nd paragraph.

..... The scoring procedure has been psychometrically analysed using the Rasch model (15), which is based on the same questionnaire that was used in the current study. The outcomes from the Rasch analysis of the PSP scale have been reported in a previous paper (16). The analysis confirmed the appropriateness of considering somatic and psychological problems as interacting parts that constitute a higher-order, unidimensional construct (psychosomatic health). The scale showed valid psychometric properties and met the measurement requirements of invariance and proper item categorisation. Page 6, end 2nd paragraph.

According to the reviewer's pointing out the lack of specific focus, we have, accordingly, rewritten the first paragraph of the "discussion", which now reads (page 11):

We found marked differences between the sexes regarding psychosomatic symptoms, with females reporting higher degrees of stress compared with males across the large age span between 10 and 24 years of age. These symptoms appeared to be most pronounced between 16 and 18 years of age and then declined, supporting and extending the results of Hagquist (4). Similar findings using the same eight questionnaire items were reported previously (4,10); however, these findings came from smaller regional studies that administered the questionnaires in person (by distributing them in schools). The present study used the Internet to assess psychosomatic health in young people using well-established questions (4,10,11), with the beneficial result of having a high number of respondents in each age and sex category. Another advantage was that each subject could log into her or his own "LunarStorm corner" and voluntarily choose to complete the questions on the community site, which would make the subjects more likely to provide honest answers.

Further added references and comments upon earlier studies (discussion, page 13, top):

Self-perceived health was undoubtedly worse for females than for males, irrespective of age; this finding is supported by earlier studies (5,6) and the results of Osika et al. (12), who used Beck Youth Inventory questionnaires.

Further added changes under the subheading "methodological considerations and limitations":

There are few data available regarding Internet-based surveys of psychological health among young people; thus, there are few validation analyses. Donker et al. (14) validated a brief web-based screening questionnaire for common mental disorders with follow-up phone interviews, using a "gold standard" interview guide to assess the presence of DSM-IV disorders in the previous 6 months. Their questionnaire screened for common mental disorders. However, the subjects in the present study could not be identified; thus, such a validation was not possible. (page 14, 2nd paragraph).

Approximately 350,000 people logged in on a given day, raising the possibility of selection bias. Because the subjects were anonymous, we could not investigate selection effects. However, a recent study using the Internet for health-related topics was independent of gender, age and diagnostic group in a group of patients with psychosomatic disorders (21). Although the design of that study was not entirely comparable with the present study, it is an indication of that there was limited selection bias in our study. Additionally, the response rate obtained at LunarStorm was very high for such a generalized Internet-based survey. (page 15).

Additional changes made to the paragraph under the subheading “conclusion”

A relatively high percentage of young people, particularly females 16–18 years of age, had psychosomatic complaints that did not seem to improve from 2007 to 2010. A considerable worsening of these complaints occurred from the age of 12 years and onward in both sexes. Internet-based survey assessment appears a valuable tool for examining self-perceived health in young people over a broad range of ages. Thus, strong emphasis must be placed on improving life conditions during early phases, such as in school environments, and then later on facilitating the transition into early adulthood. (page 15, bottom).

“Many aspects are not well expressed and there are linguistic errors → making a substantial rewriting and editing necessary.”

The text has been re-edited and rewritten both in introduction, methods and discussion, and the linguistic errors have been corrected by a professional editing company.

Reviewer: Mari Hysing
Unihealth, Bergen , Norway

I have no competing interest.

“The development of self-perceived psychosomatic health is an important subject, likewise the use of internet based assessment in assessing this.”

We thank you for acknowledging the importance of the subject studied

“However, the focus of the paper is somewhat unclear and a more focused approach could improve the manuscript. Either focusing on internet assessment, and write the introduction and run statistical analysis to answer research question or focus (is the group representative?, are the psychometric properties of the instruments comparable to other paper-pen studies and so on, other studies using internet assessment and discussing pro and cons of this alternative). Or discussing age and gender related psychosomatic concerns more specifically. The introduction could then cover more of this literature and previous findings and more appropriate analysis. One of the research questions is if psychosomatic health improves over time. However, the results focus more on gender effects, and do not appropriately control for confounders when assessing time-effects. If

gender effects are the main focus, the results should be discussed in relation to previous literature.”

Clearly, our main goal and message is the description of psychosomatic symptoms among a large range of ages of youth in Sweden, and over time, and the second message is showing the feasibility of using web based self-assessment questionnaires in a large community as a valuable tool. In order to increase clarity, this sequence of message importance now is followed through the paper. Please see also the responses above, given the similar questions from both reviewers.

We have tried to refine the description of age and gender related psychosomatic concerns more specifically.

Summary

Article focus:

- Examining self-perceived health and stress in large cohorts of children, adolescents, and young adults on a completely voluntary basis
- Examining whether psychosomatic health deteriorated in adolescents between 2007 and 2010.
- Using a large web-based community on the Internet to investigate self-perceived psychosomatic health in Swedish youth.

Key messages

- A high percentage of young subjects responded that they felt stressed very often/often, and the numbers were higher for females than for males.
- Older teenaged females had more psychosomatic complaints than males did.
- Both sexes reported a slightly worse self-perceived health status in 2010 than in 2007.
- Novel internet-based community site surveys are feasible for assessing self-perceived health in the young.

Strengths and limitations

- The study examined a very large cohort of children, adolescents and young adults from throughout Sweden.
- All subjects responded completely voluntarily.
- There may be a selection bias, given that we do not know the psychosomatic health of individuals who were not logged onto the website.
- Participation in the survey was completely anonymous; thus, we could not perform additional interviews to study the web questions' validity in this population.

The introduction now reads, also including new references:

....Importantly, the development of stress reactions in young people is, to a great extent, gender dependent (ref 4,5,6,7), page 4, 1st paragraph). Hence, it seems plausible that several factors, both psychological and physical, play important roles in children's well-being and ill health, with salient implications for future health and disease (new ref 7), page 4 end 1st paragraph).

..... The scoring procedure has been psychometrically analysed using the Rasch model (15), which is based on the same questionnaire that was used in the current study. The outcomes from the Rasch analysis of the PSP scale have been reported in a previous paper (16). The analysis confirmed the appropriateness of considering somatic and psychological problems as interacting parts that constitute a higher-order, unidimensional construct (psychosomatic health). The scale showed valid psychometric properties and met the measurement requirements of invariance and proper item categorisation. Page 6, end 2nd paragraph.

We have now added more literature references covering gender differences in psychological and psychosomatic complaints. Controlling for confounders in this study is hard, since the participants are anonymous and we don't have data on any possible confounders. Therefore, we believe that the meticulous description of the data collection strategy is of pivotal importance.

Self-perceived health was undoubtedly worse for females than for males, irrespective of age; this finding is supported by earlier studies (5,6) and the results of Osika et al. (12), who used Beck Youth Inventory questionnaires.

Further added changes under the subheading "methodological considerations and limitations":

There are few data available regarding Internet-based surveys of psychological health among young people; thus, there are few validation analyses. Donker et al. (14) validated a brief web-based screening questionnaire for common mental disorders with follow-up phone interviews, using a "gold standard" interview guide to assess the presence of DSM-IV disorders in the previous 6 months. Their questionnaire screened for common mental disorders. However, the subjects in the present study could not be identified; thus, such a validation was not possible. (page 14, 2nd paragraph).

Approximately 350,000 people logged in on a given day, raising the possibility of selection bias. Because the subjects were anonymous, we could not investigate selection effects. However, a recent study using the Internet for health-related topics was independent of gender, age and diagnostic group in a group of patients with psychosomatic disorders (21). Although the design of that study was not entirely comparable with the present study, it is an indication of that there was limited selection bias in our study. Additionally, the response rate obtained at LunarStorm was very high for such a generalized Internet-based survey. (page 15).

Additional changes made to the paragraph under the subheading "conclusion"

A relatively high percentage of young people, particularly females 16–18 years of age, had psychosomatic complaints that did not seem to improve from 2007 to 2010. A considerable worsening of these complaints occurred from the age of 12 years and onward in both sexes. Internet-based survey assessment appears a valuable tool for examining self-perceived health in young people over a broad range of ages.

Thus, strong emphasis should be placed on improving life conditions during early phases, such as in school environments, and later on facilitating the transition into early adulthood. (page 15, bottom).

"The tables would communicate better if they highlight the most important findings. Sumvariables instead of showing percentages for all responses is one possibility."

We have considered both ways, and we arrived at the conclusion that percentage values seem more simply to adhere to. We have also asked some other researchers and they are of the same opinion, i.e. that percentage presentation is meaningful and that sumvariables do not increase the "presented value". Hence we keep the percentage numbers.

Highlighting the main finding, and running more regression analysis and less descriptive data could also improve the readability and communicate your findings better.

In the first place, we would be better off, have we had access to basic raw data. This was not unfortunately the case. Hagqvist has pointed out previously that the 8-item questions relate to each

other. Our main foci are 3-fold (for which you do not need regression analysis): i) showing stress and psychosomatic symptoms across a wide range of ages (10-24y), ii) gender aspects and iii) comparing psychosomatic symptoms between 2005, 2007 and 2010.

In coming studies, we are most certainly keen to make regression analyses between various items; your point is definitely worth considering then.

VERSION 2 – REVIEW

REVIEWER	Mari Hysing PsyD Phd Faculty of Psychology , University of Bergen
REVIEW RETURNED	05-Mar-2012

GENERAL COMMENTS	I find the manuscript substantially improved, and the message was communicated clearly and it was an interesting read.
-------------------------	--

REVIEWER	Rafael Mikolajczyk head of the Unit "Epidemiology in Patient Populations" Department of Clinical Epidemiology BIPS - Institute for Epidemiology and Prevention Research
REVIEW RETURNED	27-Mar-2012

REPORTING & ETHICS	Ethics: section on ethics is lacking
GENERAL COMMENTS	<p>The manuscript was slightly improved in the revision, but the manuscript is still lacking scientific content. Apart from the serious technical insufficiencies, there is lack of scientific rigour how the study was conducted. The sequence of questions which were administered between 2005 and 2010 has to be motivated – what were the specific reasons for conduct the study in the stated way. Maybe a solution would be to declare one part as the main analysis (the 2007 and 2010 surveys) and the other as supplementary analysis – but why the supplementary analysis was conducted? This need to be clarified as this is the decisive question if a systematic research is presented here or just some observations made by chance.</p> <p>Specific comments:</p> <p>Article focus:</p> <ol style="list-style-type: none"> 1. „Examining self-perceived health and stress in large cohorts of children, adolescents, and young adults” needs to be amended by specifying the studied population – otherwise it sounds like a general review 2. “using a web-based community” cannot be a focus of a scientific paper, something like “assessment of the usability” could be

	<p>Abstract:</p> <p>3. „trends during the years 2005 to 2010“ is not consistent with the specific focus of comparison of 2007 and 2010; studying trends during years means more than comparing two different years which is reported in the results section – as stated in the methods section the way the questions were administered was far more complex, this should be indicated in the abstract</p> <p>4. Design should be “repeated cross-sectional surveys” and should state how many rounds were evaluated</p> <p>5. Results should start by stating the total number of participants</p> <p>6. Conclusions: “A high percentage of young people, particularly females 16 to 18 years of age, had psychosomatic complaints that did not seem to improve between 2007 and 2010.” This sentence is clearly wrong, the individual improvement was not the content of the study. “A considerable worsening of these complaints occurred from the age of 12 years onwards in both sexes.” Is not correct as the study did not assess worsening of symptoms within individual but compared different people at different ages.</p> <p>Introduction:</p> <p>7. The last sentence of the first paragraph of introduction is not correctly linked to the previous statements – the link between stress and health has to be stated here.</p> <p>8. “Given the recent development...” does not provide a sufficient motivation for the study – if the recent development is known why the study is necessary? Why does this study promise obtaining reliable information? In fact there are no possibilities to assess the reliability of the current study. Furthermore, the study does not really perform a trend analysis.</p> <p>9. The aim declared as study of “perceived health” is not linked to the issue of stress presented before and does not include the issue of complaints. The terms “perceived health”, “stress” and “complaints” should be linked to each other in the introduction.</p> <p>10. Further down the aim is re-declared – this time only restricted to psychosomatic health problems. The information about questionnaire should be presented in methods (the questionnaire is reportedly not including a perceived health item, so how can perceived health be addressed. The following information should be also part of the methods section.</p> <p>11. Authors stress that the study was conducted on a voluntary basis – hopefully this is mostly the case for scientific studies.</p> <p>Methods:</p>
--	---

	<p>12. "Internet-based questionnaire" in my view does not need the qualifier "self-administered" (or what are the other options?)</p> <p>13. "subjective health" and "perceived health" should not be used interchangeably as perceived health is typically directly assessed by an item "how do you rate your health" or similar. Furthermore it should be clearly stated that subjective health is a composite score. This should be consequently corrected in the abstract.</p> <p>14. The meaning of the sentence is not clear: The scoring procedure has been psychometrically analysed using the Rasch model (15), which is based on the same questionnaire that was used in the current study.</p> <p>15. Apparently the PSP related information should directly follow the description of the response options and the sentence on stress measure should follow thereafter.</p> <p>16. "Initially, we placed one question per day on LunarStorm's website (2005)." It can be only guessed that 2005 means that this was conducted in 2005.</p> <p>17. The study procedure described in the subsequent section needs a systematic justification.</p> <p>18. Distribution of respondents should be moved to the results section.</p> <p>19. The sentence "At the time of our investigations in 2005 and 2007, LunarStorm was the largest Internet community in Sweden." And the three following are clearly misplaced in the statistical analysis section.</p> <p>20. Why the information about the 2010 status is missing?</p> <p>21. "Due to the lack of normal distribution of the material and the categorical character of the questionnaire," – the wording is inadequate for material and categorical character of the questionnaire. It would be okay just to name the tests used.</p> <p>22. The following two sentences possibly describe the construction of the score but are not clear.</p> <p>Results:</p> <p>23. It is not clear to me how the severity of the self-perceived health can decline "there was a general pattern in which the severity of the self-perceived health reported by the subjects declined with age."</p> <p>24. The remaining results are okay, but again it has to be made clear what the different sections contribute.</p> <p>Discussion</p>
--	---

	<p>25. First paragraphs is well written – some of these justifying statements should be mentioned already in the introduction and methods</p> <p>26. Second paragraph repeats the results in length – instead a true discussion is very scarce.</p> <p>27. third paragraph – ditto</p> <p>28. fourth paragraph – ditto (just commenting that the results were already found by somebody else is just a first step of discussion – and should be accompanied by further considerations why this might be the case</p> <p>29. fifth paragraph should use consistently past tense (and is not fully clear)</p> <p>30. The methodological analysis reported in the discussion should be mentioned in the methods and results (especially that Rasch model is introduced already there)</p> <p>31. Information regarding response should be included in the methods (the related discussion of limitations is interesting)</p> <p>Conclusion</p> <p>32. From the presented evidence it is not clear that “...emphases must be placed on improving...” please delete this sentence</p>
--	--

VERSION 2 – AUTHOR RESPONSE

Reviewer: Mari Hysing
 Psyd Phd
 Faculty of Psychology , University of Bergen

I find the manuscript substantially improved, and the message was communicated clearly and it was an interesting read.

We thank the reviewer for her conclusion and appreciate the advice we got in the earlier review.

Reviewer: Rafael Mikolajczyk
 head of the Unit "Epidemiology in Patient Populations"
 Department of Clinical Epidemiology
 BIPS - Institute for Epidemiology and Prevention Research

The manuscript was slightly improved in the revision, but the manuscript is still lacking scientific content. Apart from the serious technical insufficiencies, there is lack of scientific rigour how the study was conducted.

The sequence of questions which were administered between 2005 and 2010 has to be motivated – what were the specific reasons for conduct the study in the stated way.

Maybe a solution would be to declare one part as the main analysis (the 2007 and 2010 surveys) and the other as supplementary analysis – but why the supplementary analysis was conducted? This need to be clarified as this is the decisive question if a systematic research is presented here or just some observations made by chance.

We are sorry for not having properly made this part clear. As suggested by this reviewer it may be better to sort out what is the main part. Our main part, however, is actually the first in time (2005), i.e. the first “stress” item, asking 148 000 subjects in a rather wide age range about their self-perceived “stress”. The results from that analysis urged us to further investigate what was behind those responses. Hence, we put out 8 questions (items) trying to disentangle how these young subjects looked upon themselves psychosomatically. Thus, we used scientifically validated items, which were launched onto the Internet separately. This approach was chosen given that we wanted to have high response rate; and we did.

Secondary to this we wanted to follow up, in smaller groups, whether any changes in self-perceived health had occurred between 2007 and 2010. This may then be considered as a “supplement”. However, these investigations, using exactly the same questions, constitute also a more recent picture of psychosomatic health in the group 15 to 20 years of age.

We do believe that these studies do represent a valid scientific approach, and that our results certainly not are observations by chance. We are, however, aware of that there may be some selection bias, which we clearly point out in limitations. It seems not to have influenced our results to any major extent, since our results are in agreement with previous data.

In the last paragraph of the Introduction, we have added what is the primary and “main” aim... and that our “secondary objective” was to explore what happened between 2007 and 2010 (last sentence of Introduction).

Specific comments:

Article focus:

1. Examining self-perceived health and stress in large cohorts of children, adolescents, and young adults” needs to be amended by specifying the studied population – otherwise it sounds like a general review

We have changed the wording and it now reads:

Examining self-perceived health and stress in large cohorts of children, adolescents, and young adults who are members of a large, Swedish web-based community.

2 “using a web-based community” cannot be a focus of a scientific paper, something like “assessment of the usability” could be

We have changed the wording and it now reads:

Assessment of the usability of a large web-based community on the Internet to investigate self-perceived psychosomatic health in Swedish youth.

Abstract:

3. „trends during the years 2005 to 2010“ is not consistent with the specific focus of comparison of 2007 and 2010; studying trends during years means more than comparing two different years which is reported in the results section – as stated in the methods section the way the questions were administered was far more complex, this should be indicated in the abstract

We have changed the wording and it now reads:

Objectives: We investigated self-perceived psychosomatic health in large groups of young people (10 to 24 years of age) in Sweden and analysed different samples during the years 2005, 2007 to 2010 via a large community website.

4. Design should be “repeated cross-sectional surveys” and should state how many rounds were evaluated

We have changed the wording and it now reads:

Design: Repeated cross-sectional surveys: (i) a single question on a single day 2005. (ii) One specific question delivered on each of eight separate days 2005. (iii) The same eight questions, delivered to a smaller group of randomly selected 15- to 20-year-olds on the same day in 2007 and then again to a new age-matched group of randomly selected subjects in 2010.

5. Results should start by stating the total number of participants

We have added number of participants into “Results”:

A large number of responses were obtained, from approximately 750 to 1 600 for the 2007 and 2010 questionnaires, to around 130 000 when questions were asked separately in 2005.

6. Conclusions: “A high percentage of young people, particularly females 16 to 18 years of age, had psychosomatic complaints that did not seem to improve between 2007 and 2010.” This sentence is clearly wrong, the individual improvement was not the content of the study. “A considerable worsening of these complaints occurred from the age of 12 years onwards in both sexes.” Is not correct as the study did not assess worsening of symptoms within individual but compared different people at different ages.

We have changed the wording and it now reads:

Conclusions: During the period 2005 to 2010 a high percentage of young people, particularly females 16 to 18 years of age, had psychosomatic complaints, and considered themselves as being often or very often stressed. These complaints occurred from the age of 12 years onwards in both sexes, and were more pronounced in the older age groups. When directing questions to a large community, Internet-based surveys appear to be valuable tools.

Introduction:

7. The last sentence of the first paragraph of introduction is not correctly linked to the previous statements – the link between stress and health has to be stated here.

We have changed the wording and it now reads:

Thus, it seems plausible that several factors, both psychological and physical, play important roles in the development of stress reactions which will have an impact on children’s well-being and ill health, with salient implications for future health and disease (7).

8. “Given the recent development...” does not provide a sufficient motivation for the study – if the recent development is known why the study is necessary? Why does this study promise obtaining reliable information? In fact there are no possibilities to assess the reliability of the current study. Furthermore, the study does not really perform a trend analysis.

We acknowledge the comments and have changed the wording and it now reads:

High frequencies of ill health such as complaints about perceived stress, and psychosomatic symptoms in children, adolescents, and young adults, particularly older teenage girls, have recently been reported in Sweden and internationally (8-13). The aim of this study was to obtain information both at a given time point and as an analysis at different time points about perceived stress and psychosomatic symptoms in Swedish subjects aged 10 to 24 years.

9. The aim declared as study of “perceived health” is not linked to the issue of stress presented before and does not include the issue of complaints. The terms “perceived health”, “stress” and “complaints” should be linked to each other in the introduction.

We have rephrased the text and linked ill health with complaints, perceived stress and psychosomatic symptoms, and it now reads:

High frequencies of ill health such as complaints about perceived stress, and psychosomatic symptoms in children, adolescents, and young adults, particularly older teenage girls, have recently been reported in Sweden and internationally (8-13). The aim of this study was to obtain information both at a given time point and as a analysis at different time points about perceived stress and psychosomatic symptoms in Swedish subjects aged 10 to 24 years.

10. Further down the aim is re-declared – this time only restricted to psychosomatic health problems. The information about questionnaire should be presented in methods (the questionnaire is reportedly not including a perceived health item, so how can perceived health be addressed. The following information should be also part of the methods section.

The text about the questionnaires has been deleted, as it already is reported in the methods section. The text about the Internet community LunarStorm has been moved to the methods section and changed. It now reads:

Initially, we placed one question per day on LunarStorm’s website, which was one of the first web communities to be established in Sweden.

11. Authors stress that the study was conducted on a voluntary basis – hopefully this is mostly the case for scientific studies.

Unlucky expression of ours, thank you for pointing that out. However, in many questionnaire investigations, subjects are given questions to answer while staff persons are waiting – i.e. some kind of group pressure to fill out the forms. Such a procedure has been the common way in schools. We want to point out the difference inasmuch that here, the subjects can fill out the question whenever they want – or not at all, and nobody worries about it.

The phrase “on a completely voluntary basis” has now been deleted and the text now reads:

To our knowledge, this study is the first to use the Internet to examine self-perceived health and stress in large cohorts of children, adolescents, and young adults.

Methods:

12. "Internet-based questionnaire" in my view does not need the qualifier "self-administered" (or what are the other options?)

The phrase "self-administrative" has been deleted. The text now reads:

Data were collected via an Internet-based questionnaire consisting of three parts:

13. "subjective health" and "perceived health" should not be used interchangeably as perceived health is typically directly assessed by an item "how do you rate your health" or similar. Furthermore it should be clearly stated that subjective health is a composite score. This should be consequently corrected in the abstract.

We have replaced "perceived health" with "subjective health"

Eight questions about subjective health that were completed between 26 May and 28 June 2005.

The text has been changed accordingly:

The same eight questions (comprising a composite measure of subjective health), delivered to a smaller group of randomly selected 15- to 20-year-olds on the same day in May 2007 and then again to a new age-matched group of randomly selected adolescents and young adults in May 2010.

14. The meaning of the sentence is not clear: The scoring procedure has been psychometrically analysed using the Rasch model (15), which is based on the same questionnaire that was used in the current study.

The sentence seems to be redundant and has been deleted. The next sentence has been changed and now reads:

The outcomes from psychometric Rasch analysis of the PSP scale have been reported in previous papers (15, 16).

15. Apparently the PSP related information should directly follow the description of the response options and the sentence on stress measure should follow thereafter.

The sentence on the stress measure has been moved accordingly.

The item about stress was "How often/seldom do you feel stressed?", and the response categories were "yes, very often"; "yes, often"; "yes, sometimes"; "no, seldom"; "no, very seldom"; "no, never"; and "don't know".

16. "Initially, we placed one question per day on LunarStorm's website (2005)." It can be only guessed that 2005 means that this was conducted in 2005.

We have changed the wording and made it shorter since the information on time (year and month of investigation) already is in the earlier method section. It now reads

Initially, we placed one question per day on LunarStorm's website, which was one of the first web communities to be established in Sweden.

17. The study procedure described in the subsequent section needs a systematic justification.

The following explanatory sentence has been added:

The reason why we placed one question per day instead of presenting the whole eight item questionnaires at one single occasion was that the web community administer had the experience that using such long composite questionnaires decreased the participation rate substantially. However, after receiving high response rates on the separate items we decided to include the whole eight item questionnaire at one specific time point.

18. Distribution of respondents should be moved to the results section.

This sentence has been moved accordingly:

The single question about stress received 148,395 responses (85,330 girls) from 10- to 24-year-olds.

Also this sentence was moved to the result section:

Given that these questions were placed one at a time, the response frequency varied between 12,000 and 45,000 subjects, who were mainly in the 10- to 12-year-old and 13- to 18-year-old age groups, respectively; the response frequencies for all eight questions were similar.

And the following sentence in the result section has been deleted as it was redundant

Approximately 148,000 individuals, 57% of whom were females, answered the single question about stress.

19. The sentence "At the time of our investigations in 2005 and 2007, LunarStorm was the largest Internet community in Sweden." And the three following are clearly misplaced in the statistical analysis section.

The sentences have been moved to the methods section:

At the time of our investigations in 2005 and 2007, LunarStorm was the largest Internet community in Sweden. It had 1.3 million active members and approximately 360,000 unique visitors per day who spent approximately 40 minutes per visit on the site (TNS Gallup/Red Measure, Nielsen/Net Ratings). Eighty-three per cent of 15- to 20-year-olds in Sweden were LunarStorm members, and 25 out of 30 pupils in every secondary school class were members (Lunarworks AB/SCB). The gender distribution of members was 53% females.

20. Why the information about the 2010 status is missing?

We apologize if this has not been clear. We point to the following text in Methods:

In yet another Internet-based protocol using the same eight questions described above to determine self-perceived health trends, the subjects were randomly selected in both May 2007 and in May 2010 to respond to the questions. These groups comprised approximately 1,500 subjects aged 15 to 20 years (Table 2).

21. "Due to the lack of normal distribution of the material and the categorical character of the questionnaire," – the wording is inadequate for material and categorical character of the questionnaire. It would be okay just to name the tests used.

The following sentence has now been deleted:

“Due to the lack of normal distribution of the material and the categorical character of the questionnaire, nonparametric tests were used”.

22. The following two sentences possibly describe the construction of the score but are not clear.

We have added more detailed information on the scoring and the text now reads:

The Mann-Whitney U test and the Kruskal-Wallis and chi-squared tests were used. Each of the possible responses to each of the eight questions in the Likert format was assigned a number (“no, never=1”; “no, seldom=2”; “yes, sometimes=3”; “yes, often=4”; and “yes, always=5”), which was multiplied by the response frequency and then averaged. The same procedure was performed with the item about stress and the response categories were “yes, very often=6”; “yes, often=5”; “yes, sometimes=4”; “no, seldom=3”; “no, very seldom=2”; “no, never=1”; the answer “don’t know” was not included in the statistical calculations. Statistical significance was considered when $p < 0.05$.

Results:

23. It is not clear to me how the severity of the self-perceived health can decline “there was a general pattern in which the severity of the self-perceived health reported by the subjects declined with age.”

The text has been changed and now reads:

...and there was an age-related decline in the severity of self-perceived health; however, girls still reported higher frequencies of psychological ill-health during the whole investigated age-span.

24. The remaining results are okay, but again it has to be made clear what the different sections contribute.

Although we used the approach of several cross-sectional designs and subsequent analyses of data, we believe that repeating these protocols, containing the very same questions, give us valid information about psychosomatic health status in a large number of young individuals over a period of 5 years. We do hope, however, that this message has now been clearer throughout the manuscript with the changes which have now been performed.

Discussion:

25. First paragraphs is well written – some of these justifying statements should be mentioned already in the introduction and methods

The last part of the first paragraph has been used in the beginning of the method section.

The present study used the Internet to assess psychosomatic health in young people using well-established questions (4,10,11), with the beneficial result of having a high number of respondents in each age and sex category. Each subject could log into her or his own “LunarStorm corner” and voluntarily choose to complete the questions on the community site, which would make the subjects more likely to provide honest answers.

The remaining text has been changed, to reduce redundancy in the discussion.

The present study used the Internet to assess psychosomatic health in young people using well-

established questions (4,10,11), with a high number of respondents in each age and sex category. The fact that each subject could voluntarily and anonymously choose to complete the questions on the community site, could have made the subjects more prone to provide honest answers.

26. Second paragraph repeats the results in length – instead a true discussion is very scarce.

27. third paragraph – ditto

28. fourth paragraph – ditto (just commenting that the results were already found by somebody else is just a first step of discussion – and should be accompanied by further considerations why this might be the case

We completely agree that there was a lot of redundancy of results within this text. Several paragraphs have now been shortened considerably (points 26 – 28). The new condensed and discussed text now reads:

As shown in the present study and what has been noted previously (4,11), is that females are more likely than males in the same age group to report feeling stressed across both childhood, adolescence and as young adults. Notably, while females seem to increase their reporting of stress and psychosomatic symptoms from childhood to young adults, similar variables are remarkably constant from 13 to 24 years of age in males. These salient sex differences may be explained by the fact that there are real differences in stress levels and psychosomatic symptoms between the sexes, or that girls are more self-aware and reflecting and therefore more able to assess their psychological health, or that it is more culturally acceptable for girls to report psychosomatic symptoms, or a combination of the factors above. Boys might be more inclined to express themselves more physically, like being more active in sports, or pursue other forms of acting out behaviour (10).

29. fifth paragraph should use consistently past tense (and is not fully clear)

This has now been changed accordingly. In addition, a sentence has been added to the last paragraph just prior to the subheading “methodological considerations...” :

In the light of our demonstrated sex differences also during school-age, one may surmise that factors related to school environment might affect girls and boys differently.

30. The methodological analysis reported in the discussion should be mentioned in the methods and results (especially that Rasch model is introduced already there)

We acknowledge this valuable comment, and have, accordingly, moved the “Rasch-paragraph” to the method section, although we believe that it is valid to state, shortly, the Rasch model in the methodological considerations part.

The Rasch model further revealed that from a general level of analysis, the eight items were invariant among students with good health and among those with bad health. Importantly, these eight questions also work invariantly across time; i.e., there is no differential item functioning with respect to the year of investigation, which is a prerequisite for repeated analysis, as in the present study.

31. Information regarding response should be included in the methods (the related discussion of limitations is interesting)

We have moved the requested text to the method section:

Compared with the response rates obtained from telephone or mail questionnaires, the number of responders per day may seem somewhat low. We received responses from 100,000 to 150,000 individuals per day, which represents approximately 36% of the entire population of members (1.2 million).

Conclusion

32. From the presented evidence it is not clear that "...emphases must be placed on improving..." please delete this sentence

The following sentence has been deleted:

Thus, strong emphases must be placed on improving life conditions during early phases, such as in school environments, and then later on facilitating the transition into early adulthood.

VERSION 3 – REVIEW

REVIEWER	Rafael Mikolajczyk senior scientist BIPS-Institute for Epidemiology and Prevention Research
REVIEW RETURNED	22-May-2012

THE STUDY	response rates are not clearly articulated, linguistic errors need to be improved
------------------	---

VERSION 3 – AUTHOR RESPONSE

We thank the reviewer for having been thorough in the process, considerably improving the paper. We hope that you will find our paper to your satisfaction.