## PEER REVIEW HISTORY



## ARTICLE DETAILS

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| **TITLE (PROVISIONAL)** | Are Jordanian primary healthcare practitioners fulfilling their potential in cancer prevention and community health? Findings from a cross-sectional survey. |
| **AUTHORS** | Obeidat, Nour; Habashneh, Malek; Shihab, Rawan; Hawari, Feras Hawari |

## VERSION 1 - REVIEW

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| **REVIEWER** | Julien Gelly<br>Department of General Practice<br>Paris Diderot Universuty<br>France |
| **REVIEW RETURNED** | 16-Sep-2016 |

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| **GENERAL COMMENTS** | This paper aims to describe the status of healthy lifestyle promotion by primary healthcare practitioners in Jordan. The document is well written. I have major concerns on the study design (a descriptive study based on declarative results) and the questionnaire used in the population (a non-validated questionnaire). However, the novelty of the data in this area could be important to the scientific community. Some other comments are above-mentioned.<br>TITLE<br>- Page 1, line 3: I am not sure that focusing on 'cancer' prevention is pertinent.<br>ABSTRACT<br>- Page 2, line 5: Same remark on 'cancer', because healthy lifestyles measured in this study are concerning also cardiovascular prevention (and maybe 'above all' cardiovascular prevention').<br>INTRODUCTION<br>- Page 4, line 28: Sorry, but I insist. Why only focusing on 'cancer' prevention?<br>METHODS<br>- Page 4, line 46: Is it an auto-administrated questionnaire. If so, please specify and discuss its specific limits.<br>- Page 5, lines 3-5: Tobacco use, healthy diet and physical |

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| | activity are also cardiovascular disease-related healthy lifestyle.<br>- Page 6, lines 55-57: I don't understand this sentence (or the its construction is to complicated for the reader). Please clarify.<br>DISCUSSION<br>This section should insist on the limits of this study (as explained previously: a descriptive study, based on an auto-administrated and non-validated questionnaire, giving declarative data, which mean a lot of bias to be discuss).<br>TABLES AND FIGURES<br>- Table 2: The presentation of each item as sometimes 'disagreeing/neutral' or 'agreeing/neutral' could be homogenized, and it should be explained in the Methods section. |

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| **REVIEWER** | Munir Abu-Helalah<br>Mutah University, Jordan |
| **REVIEW RETURNED** | 18-Oct-2016 |

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| **GENERAL COMMENTS** | Sample size is insufficient and not representative.<br><br>Sampling technique: it seems to be convenient sample. Authors need to describe in details their sample technique. Did they select convenient sample or not? what are the proportion from each healthcare sector in Jordan. How the selected GPs. Questionnaire validity and reliability figures not presented. Questions are more subjective than objectives like using personal reporting of confidence of providing advice. No assessment for the information provided or at least duration of the advice.<br><br>Authors are not reporting recent publications from Jordan on this topic. Four papers were published between June 2015 and May 2016 from Jordan on smoking cessation advice and role of GPs in smoking cessation, delay in diagnosis of breast cancer, delay in diagnosis of colorectal cancer. Authors did not mention anything about these publications. |

## VERSION 1 – AUTHOR RESPONSE

We would like to thank the reviewers and editors for their time and efforts. Their feedback has been very valuable. Our responses are included below.

**Reviewer: 1**

This paper aims to describe the status of healthy lifestyle promotion by primary healthcare practitioners in Jordan. The document is well written. I have major concerns on the study design (a descriptive study based on declarative results) and the questionnaire used in the population (a non-validated

questionnaire). However, the novelty of the data in this area could be important to the scientific community. Some other comments are above-mentioned.

We fully understand the reviewer's concern. We did not use a previously validated questionnaire because we wanted to gauge healthy lifestyle prevention in Jordanian primary care practitioners in the contexts of both a specific combination of lifestyle factors, and cancer prevention. Furthermore, the study was performed in collaboration with the Jordanian Ministry of Health, who was interested in specific areas to probe. We were thus unable to find a single validated Arabic questionnaire that would cover all our interests.

Although we developed our own unique tool, the tool did not deviate from the broad approach that others have used (and which we cite). To further improve our readers' confidence in our measurement tool, we now also present the tools reliability results (Cronbach alpha). Furthermore, we point to this aspect of the tool as a potential limitation that readers need to bear in mind. We hope in this way that our Discussion will be perceived as less declarative.

TITLE

1. Page 1, line 3: I am not sure that focusing on 'cancer' prevention is pertinent.

ABSTRACT

2. - Page 2, line 5: Same remark on 'cancer', because healthy lifestyles measured in this study are concerning also cardiovascular prevention (and maybe 'above all' cardiovascular prevention').

INTRODUCTION

3. - Page 4, line 28: Sorry, but I insist. Why only focusing on 'cancer' prevention?

METHODS

4. - Page 5, lines 3-5: Tobacco use, healthy diet and physical activity are also cardiovascular disease-related healthy lifestyle.

We have combined our response to the above related points in the section below:

We certainly agree with the reviewer. Our intention is not to dismiss the cross-cutting nature of prevention through healthy lifestyles across several diseases. We focused on prevention in the context of cancer in particular because we believed it was (is) an NCD that is not well-addressed in primary healthcare clinics in Jordan. Rather, from anecdotal information from our colleagues, more common NCDs such as cardiovascular disease tend to take precedence in importance. Ultimately, we are interesting in highlighting the deficiencies in cancer prevention and how these can easily be integrated within the discourse of cardiovascular disease prevention.

We recognize that our Introduction was not explicit in that we mention NCDs in general rather than focus on cancer as an NCD. We have modified our Introduction to better express this.

METHODS

5. - Page 4, line 46: Is it an auto-administrated questionnaire. If so, please specify and discuss its specific limits.

We had mentioned this in the Methods section ("all active PHCPs… in each clinic visited were asked to complete the questionnaire") but we now also add the word "self-administered" in the following sentence to ensure readers recognize it was self-administered completion ("the self-administered Arabic questionnaire was developed using the Social Cognitive Theory").

6. - Page 6, lines 55-57: I don't understand this sentence (or the its construction is to complicated for the reader). Please clarify.

The sentence "Descriptive statistics were further analyzed in a bivariate manner for physicians and nonphysicians, since this particular factor was of practical relevance in informing recommendations for

future training efforts (i.e. that they may need to be tailored to profession)" was reconstructed as follows: "Descriptive statistics were compared between physicians and nonphysicians in order to gauge if practice and knowledge gaps would need to be addressed – in future training efforts – separately for these two groups". Our findings indicate that both groups are in great need for training and education.

DISCUSSION

7. This section should insist on the limits of this study (as explained previously: a descriptive study, based on an auto-administrated and non-validated questionnaire, giving declarative data, which mean a lot of bias to be discuss).

We now include a clear limitations section. Readers are now provided with a better-balanced Discussion.

We also wanted to clarify that, by virtue of the heavy traffic of patients in the [subsidized] public healthcare system, accessing practitioners is very difficult. Our colleagues in the Ministry of Health could not propose a larger number of clinics, and this confined our sample size (although we now also confirm that our study was sufficiently powered to report key practices).

While our results are cross-sectional, they emphasize a glaring deficiency, and also bring to light factors that need to be addressed to improve provider practices (counseling skills). Despite our limitations, we are fairly confident that there are dramatic practice gaps in governmental healthcare clinics, and that Jordanian practitioners in these clinics are in need of intensive training in cancer prevention within the context of overall NCD prevention. Availing this information in the medical literature and in a journal such as this will highlight the importance of such findings.

TABLES AND FIGURES

8. - Table 2: The presentation of each item as sometimes 'disagreeing/neutral' or 'agreeing/neutral' could be homogenized, and it should be explained in the Methods section.

We presented the results in terms of perceptions that could be potentially deterring to the provision of counseling on cancer prevention. The numbers in Table 1 were therefore displayed so that the reader could immediately sense the degree to which practitioners' perceptions could be improved. Thus, proportions of practitioners who disagreed with positive statements about counseling or who agreed with negative statements about counseling were presented (we could not present the statements in a consistent manner to avoid double negatives in certain statements). If the reviewer still does not see this as necessary we can homogenize the table.

**Reviewer: 2**

Sample size is insufficient and not representative.

We understand the importance of ensuring, from a statistical perspective, that our findings are reliable and precise. However, the insufficiency of our sample size can only be concluded through statistical calculations. We conducted ad hoc analyses to ensure our study was not underpowered to deliver its main findings. For the numerous variables in the survey, the power of our study will depend on the point estimate, the variability of that estimate, the intended type I and II errors, and the variable-specific intraclass correlation coefficient (since results may have been clustered by practice site).

For our main variables of interest in our study, we provide the following table to demonstrate our study was not underpowered by presenting the sample size that would have been needed to detect a variety of mean effects (using the following formulae[1])

$N = 4Z^2_{\alpha}S^2$ / (standardized width of confidence interval)

where S = standard deviation

| Variable | Mean observed in study | Standard deviation accounting for clustering | Intraclass correlation coefficient (ICC) | Sample size needed to detect specific point estimate for variable* | Effective sample size for a study of 322 with this ICC |
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| Percentage of patients asked about cigarettes | 44.60 | 28.99 | 0.03996 | 129 | 199 |
| Percentage of patients for which tobacco use documented | 31.86 | 32.25 | 0.00236 | 160 | 312 |
| Percentage of patients asked about diet | 42.79 | 35.66 | 0.08 | 195** | 144 |
| Percentage of patients asked about exercise habits | 49.52 | 34.77 | 0.08 | 186** | 144 |
| Percentage of patients for which association of diet with cancer explained | 39.16 | 29.35 | 0.05283 | 132 | 178 |
| Percentage of patients for which association of exercise with cancer explained | 38.14 | 29.97 | 0.04307 | 138 | 194 |
| Percentage of patients for which association of smoking with cancer explained | 53.60 | 31.71 | 0.10391 | 155** | 124 |
| Percentage of patients for which evidence-based recommendations about diet provided | 50.23 | 30.49 | 0.05631 | 143 | 172 |
| Percentage of patients for which evidence-based recommendations about exercise provided | 47.43 | 29.69 | 0.05035 | 135 | 181 |
| Percentage of patients for which evidence-based recommendations about cessation provided | 49.10 | 32.51 | 0.08671 | 162** | 138 |

**Alpha level 1.96; power of 80%*

*** For parameters with ICCs that were 0.08 or greater (which were few since 75% of the ICCs for all the parameters analyzed fell below 0.06), the study was sufficiently powered if the alpha level was raised to 10%, which we think is also within reason)*

Sampling technique: it seems to be convenient sample. Authors need to describe in details their sample technique. Did they select convenient sample or not? what are the proportion from each healthcare sector in Jordan. How the selected GPs.

We had described this information in our Methods section. A purposive sample of clinics representing the main governorates and areas of Jordan were selected for inclusion by the Ministry of Health. All nurses and GPs in each clinic were targeted. We focus on one type of healthcare provider, the largest public primary healthcare provider in Jordan (i.e. governmental primary healthcare clinics operated by the Ministry of Health). The governmental healthcare sector (composed of primary healthcare clinics, and several large hospitals across the country) is accessed by more than half the population of Jordan, and by refugees now residing in the country, due to its providing subsidized care. Primary healthcare clinics provide comprehensive medical care and initial diagnostic testing for all acute as well as chronic conditions, and hospitals are only utilized in advanced cases after referral from clinics. We now reiterate the healthcare system we studied in the Introduction.

Questionnaire validity and reliability figures not presented. Questions are more subjective than objectives like using personal reporting of confidence of providing advice. No assessment for the information provided or at least duration of the advice.

We now report the reliability estimates for our instrument. We also point out the potential limitation of not using a widely utilized and validated instrument. Nevertheless, in the context we probe, it was difficult to acquire a tool that would have served the purpose of our study.

In addition we would like to acknowledge the use of subjective responses, but their subjectivity should not necessarily be an indication of unreliability. We could not access objective measures of reporting because documentation of practices in these settings is poor. We were also unable to access patients for possible validation of self-reported practices of practitioners (which we can also include in the limitations section of our discussion). However, we were able, through these subjective measures to evaluate detailed perceptions and knowledge, as well as personal practices, for these providers. This would not have been generated otherwise. As with any study, there are advantages as well as limitations to our study design.

Authors are not reporting recent publications from Jordan on this topic. Four papers were published between June 2015 and May 2016 from Jordan on smoking cessation advice and role of GPs in smoking cessation, delay in diagnosis of breast cancer, delay in diagnosis of colorectal cancer. Authors did not mention anything about these publications.

We are aware of a selection of studies that were published but did not find them immediately relevant to our focus. Our focus for this manuscript was not early diagnosis, did not solely cover smoking cessation (but rather a package of services), and was focused on practitioners rather than patients or the lay public. We nevertheless re-ran a Medline search to ensure that we did not miss any relevant studies and retrieved the below list of studies. We can confirm that we have not missed any key local studies that would render ours redundant.

To emphasize the value of local research in supporting the premise of our study, we can cite four (highlighted below) studies which conclude the need to do more to enhance patient / lay public knowledge with regards to cancer prevention and risk (these four studies focus on the patient or general public). Our introduction has been updated accordingly.

- ABU-HELALAH, M. A., ALSHRAIDEH, H. A., AL-SERHAN, A. A., KAWALEET, M. & NESHEIWAT, A. I. 2015. Knowledge, barriers and attitudes towards breast cancer mammography screening in jordan. Asian Pac J Cancer Prev, 16, 3981-90.
- ABU-HELALAH, M. A., ALSHRAIDEH, H. A., DA'NA, M., AL-HANAQTAH, M., ABUSEIF, A., ARQOOB, K. & AJAJ, A. 2016. Delay in Presentation, Diagnosis and Treatment for Colorectal Cancer Patients in Jordan. J Gastrointest Cancer, 47, 36-46.
- AHMAD, M. M., DARDAS, L. A. & AHMAD, H. 2015. Cancer prevention and care: a national sample from Jordan. J Cancer Educ, 30, 301-11.
- AHMAD, M. M. & AL-GAMAL, E. 2014. Predictors of cancer awareness among older adult individuals in Jordan. Asian Pac J Cancer Prev, 15, 10927-32.
- JAGHBIR, M., SHAREIF, S. & AHRAM, M. 2014. Quitting smoking and utilization of smoking cessation services in Jordan: a population-based survey. East Mediterr Health J, 20, 538-46.
- AL DASOQI, K., ZEILANI, R., BAWADI, H. & AL DASOQI, A. 2015. Perspectives and Attitudes of Jordanian Male College Students on Breast Cancer Screening. J Cancer Educ.
- AL RIFAI, R. & NAKAMURA, K. 2015. Differences in Breast and Cervical Cancer Screening Rates in Jordan among Women from Different Socioeconomic Strata: Analysis of the 2012 Population-Based Household Survey. Asian Pac J Cancer Prev, 16, 6697-704.
- HASSONA, Y., SAWAIR, F., BAQAIN, Z., MAAYTA, W., SHAHIN, A. & SCULLY, C. 2015. Oral Cancer Early Detection--a Pressing Need for Continuing Education in Jordan. Asian Pac J Cancer Prev, 16, 7727-30.
- OMRAN, S., BARAKAT, H., MULIIRA, J. K., BASHAIREH, I. & BATIHA, A. M. 2015. Assessment of Jordanian Patient's Colorectal Cancer Awareness and Preferences towards CRC Screening: Are Jordanians Ready to Embrace CRC Screening? Asian Pac J Cancer Prev, 16, 4229-35.
- OMRAN, S., BARAKAT, H., MULIIRA, J. K. & MCMILLAN, S. 2015. Dietary and Lifestyle Risk Factors for Colorectal Cancer in Apparently Healthy Adults in Jordanian Hospitals. J Cancer Educ.
- TAHA, H., JAGHBEER, M. A., SHTEIWI, M., ALKHALDI, S. & BERGGREN, V. 2015. Knowledge and Perceptions about Colorectal Cancer in Jordan. Asian Pac J Cancer Prev, 16, 8479-86.


## VERSION 2 - REVIEW

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| **REVIEWER** | Dr. Joshua Muliira<br>Sultan Qaboos University<br>College of Nursing<br>P. O. Box 66 AL Khod, Muscat<br>Oman |
| **REVIEW RETURNED** | 30-Nov-2016 |

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| **GENERAL COMMENTS** | I feel that the paper is adding valuable insights about primary care and health promotion in the Middle East. The paper is very well written and addresses a critical gap in research. |

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| **REVIEWER** | Maha Arnaout<br>Istiklal Hospital<br>Jordan |
| **REVIEW RETURNED** | 30-Nov-2016 |

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| **GENERAL COMMENTS** | This is a well written manuscript. The data represented may be important for the design of further studies in the field.<br>Sample: I have some concerns of this sample is representative of the primary health sector in Jordan since the sample is only representative of some of the governmental primary health care clinics. How the sample size was derived needs to be explained in more detail.<br>Questionnaire: Reliability and validity data not presented for the used instrument.<br>Limitations and areas of bias need to be described more in the discussion area. |

**VERSION 2 – AUTHOR RESPONSE**

Reviewer comments
Sample: I have some concerns of this sample is representative of the primary health sector in Jordan since the sample is only representative of some of the governmental primary health care clinics. How the sample size was derived needs to be explained in more detail.
We understand the reviewer's concern and we hope our Limitations section fairly presents (in a briefer version) the following:

The sample represents governmental primary healthcare clinics across the main governorates of the country, not the entirety of primary healthcare clinics in Jordan. However, the primary healthcare structure in the country largely exists within the governmental healthcare sector (and to a lesser extent in the subsidized but less accessible Royal Medical Services – while UNRWA primary healthcare clinics provide primary healthcare structure, they are only accessible to refugees; university hospitals do not provide an integrated primary healthcare service). We thus focused on the largest public primary healthcare provider in the country, namely the Jordanian Ministry of Health.1,2 Our findings pertain to a key healthcare provider which offers its primary care services to more than half the population in the country, according to Jordan's most recent National Census.2

At the level of governmental primary healthcare clinics, the Jordanian Ministry of Health nominated a sample that it deemed representative of its clinics. The sample was purposive, but the selection process strived to reflect clinics across the country. Due to time constraints that practitioners in this sector typically face, the Ministry of Health restricted its selection to 20 clinics. Having said that, we conducted post-hoc power analyses to ensure that our sample size was sufficient to draw sound conclusions (we would be happy to provide the results of these power analyses. We did not include them in the main document).

In order to provide the reader with better perspective about the study findings, we expanded the information in the Limitations section (pages 8-9).

Questionnaire: Reliability and validity data not presented for the used instrument.
In our Methods section, we describe the tool as follows, and present one reliability estimate: "Content validity for the questionnaire was ensured by reviewing it with physicians and allied health staff working in the Jordanian Ministry of Health as well as King Hussein Cancer Center; and the tool was piloted in one primary healthcare clinic. The Cronbach's alpha (internal consistency) of the questionnaire was 0.80."
We were not able to use a previously validated questionnaire because we wanted to gauge healthy lifestyle prevention in Jordanian primary care practitioners in the contexts of both a specific combination of lifestyle factors and cancer prevention, and we were unable to find a validated Arabic

questionnaire that would cover all our interests (there is a substantial lack of instruments and established measures in this area and this also limited the extent to which we could validate our findings). However, the tool did not deviate from the broad approach that others have used (and which we cite).
In our limitations, we also point to the fact that our questionnaire was not previously validated, so that results are interpreted with care. Nevertheless, we hope that our findings offer practical and revealing information that can be used to promote improved practices in the largest primary healthcare sector in Jordan, and as suggested by the reviewer, pave the way for further research in this area.
Limitations and areas of bias need to be described more in the discussion area.
We have expanded our Limitations section.

References

1. The National Strategy for Health Sector in Jordan 2015- 2019. https://usaidjordankmportal.com/system/resources/attachments/000/000/311/original/Jordan_National_Health_Sector_Strategy_2015-2019_.pdf?1455799625. Accessed January 10, 2017.
2. Jordanian Department of Statistics. Jordan Census, 2015. http://census.dos.gov.jo/wp-content/uploads/sites/2/2016/02/Census_results_2016.pdf. Accessed April 3, 2016.

**VERSION 3 – REVIEW**

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| **REVIEWER** | Maha Arnaout, MD<br>Istiklal Hospital<br>Jordan |
| **REVIEW RETURNED** | 24-Jan-2017 |

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| **GENERAL COMMENTS** | The major comments have been answered |

[1] Designing Clinical Research. 3rd edition. Hulley, SB. et al.