Reviewer's report

**Title:** Exploring obesogenic environments: Design and development of migrant obesogenic perception of the environment questionnaire (MOPE-Q)

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**Reviewer:** Tarra Penney

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This paper reports on the design, implementation and testing of a questionnaire to measure perceived obesogenic environments for relevance to individuals migrating from Iran to Australia. Specifically it has sought to capture potential differences and similarities in the many environmental domains and levels (i.e. physical, economic, political and socio-cultural as per the ANGELO framework) on healthy eating, physical activity and body image that may be experienced by migrants between these two countries, and therefore help explain the development of obesity seen in those who migrate from low or medium income countries, to high income countries.

This is a quite interesting area of investigation, understanding a variety of perceived environmental influences on the determinants of obesity (i.e. diet, physical activity), especially among individuals from a range of countries and cultures, is certainly needed. However, in order to best contribute to the complex field of obesogenic environments, this paper would benefit from further work in articulating its fit within the current work seeking to understand obesogenic environments, its unique contribution and generalizability to the field of obesity prevention, and reporting of methods and results before publication. Some suggestions for consideration are given below.

**Major Compulsory Revisions**

**Need for additional background and rational:**

It is unclear where the constructs included in the questionnaire originated. The primary origin described in the article seems to be the ANGELO framework, however to my knowledge the ANGELO does not provide specific constructs but levels and domains of different environments. If this is the primary theoretical framework informing the measure, a detailed description of the framework and how it informed the measure would be helpful.

Even with the ANGELO description added, many of the items seem to measure constructs for both food and physical activity environments that currently exist in the literature including availability, accessibility, affordability etc of food; safety, accessibility of infrastructure, etc of places for physical activity. Specifically, there is not recognition of the vast amount of work that has been done, and emerging,
to measure food and physical activity environments (i.e. obesogenic environments) to support the behavioural determinants of obesity. While these measures may not have yet been applied to migrants, they are well used in other populations. If these are indeed sources that have been used to inform the work (which seem to be based on some of the measurement items), it would be most helpful to build on this knowledge base and describe how this work builds on, and expands this knowledge.

Need for full reporting of methods and results:
The methods seem to describe in detail the testing of the measure, but not the development of the questionnaire. How were the different domains operationalized? Why were the items selected? What exactly are the selection options for the ‘obesogenic likert scale’? What informed the choice to use 7 options versus 1?

In the reporting of the results of the factor analysis it would be advisable to review suggested practices including 1) the reporting of all factor loadings for transparency, 2) reporting the method for selecting the number of factors (i.e. eigenvalues or scree tests), etc. A source that may be helpful is ‘Use of factor analysis in Journal of Advanced Nursing: literature review’ Watson & Thompson.

Confusion around generalizability
In several places throughout the article there are statements that require some caution. For this measure, it seems to be important to be consistent in discussion and concluding statements regarding the type of measurement (i.e. perceived) and its targeted intention (i.e. migrants), rather than the general population. For example, background paragraph 3 ‘Broad-scale environmental approaches to obesity prevention are likely to fail unless these factors are understood and used to shape relevant initiatives and interventions.’, should be specific to the population under study here (i.e. migrants), its not clear what effect understanding perceived obesogenic environments for this population would have on intervention for the general population and vice versa. If the authors feel this is justifiable, it should be a well-supported statement with stronger evidence and rational. Another example that could use revision is the first sentence in the conclusion ‘The MOPE-Q is the first questionnaire developed to measure environmental determinants of obesity.’ Again, this could use qualification to include the target population. As it stands, this is a bold statement, and may not acknowledge the reams of research happening across multiple disciplines studying the environmental determinants of diet and physical activity, for which there are many measures.

Minor Essential Revisions
The abstract is currently focused on the development and testing of the questionnaire, however revision to better reflect the full breadth of the article (i.e. the rationale for evidence in this population) and the key words in the title is needed.

The selection of some of the references in the background seem tenuous, and
could benefit from review. For example, the first reference for Banduras social cognitive theory is arguably out of place for this work which proposes to focus on perceived characteristics of the obesogenic environment as defined by ANGELO, a quite different conceptualization. If it is important, I would suggest an explanation of the theory and how it is relevant.

Minor edits
A reference in the wrong format, Background paragraph 3 (Dijkshoorn et al. 2008)
Background paragraph 5 ‘Environmental Grid of …’, should this be Analysis Grid of …?
Procedure, write out PLS
Discretionary Revisions
None.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
None declared.