**Response to the reviewer’s comments**

Dear Reviewer,

We are grateful for your comments and are hereby responding to you:

**Reviewer #1:** Thank you for your suggestion to evaluate the usefulness of the approach and limitations on real implementation. Due to the time limitation, this task can be considered as our future research work.

**Reviewer #2:** Thank you for the suggestion of improvement.

1. The first point in the “Discussion” section focused on the comparison between deep learning methods and probabilistic methods. In particular, this point explained the advantages of RNN over HMM or MC.
2. A couple of sentences were added in “Recurrent Neural Network” section to explain what is RNN with target replication.
3. We went through the entire paper and fixed all the spelling and grammatical errors.
4. Modified the “Results” section to use the full name of PPC code.

**Reviewer #3:** Embedding can be used in different ways in deep learning. In our experiment, it was used as the part of a deep learning model where the embedding was learned along with the model itself. In particular, the embedding was learned during the training of the classification model. Although the proposed model was applied on motivational interviews, in general, it can be applied to any sequence classification problems.

**Reviewer #4:** The MYSCOPE is an adaptation of an existing MI code scheme (codebook), the Motivational Interviewing Sequential Code for Observing Process Exchanges (SCOPE)[1]. The original SCOPE was adapted to include culturally relevant examples of CT and CML specific to black adolescents with obesity and caregivers; examples of CT and CML for the pertinent target behaviors (weight loss, healthy nutritional changes, increased physical activity); and new codes for provider communication behaviors that had not been included in existing coding schemes (e.g., emphasizing autonomy, eliciting feedback). The result of this work was the Minority Youth Sequential Coding for Observing Process Exchanges (MY-SCOPE). Usually, wordToVec is utilized for text data where each sample is the sequence of words. However, this study represents each sample as the sequence of MYSCOPE code.

**Reviewer #5:** We went through the guideline of the TRIPOD statement and checked all points. Now, the exact definition of outcome variables is provided in “data collection” section.

[1] Martin T, Moyers TB, Houck J, et al. Motivational Interviewing Sequential Code for Observing Process Exchanges (MI-SCOPE) Coder’s Manual. Albuquerque, NM: University of New Mexico, Center on Alcoholism, Substance Abuse, and Addictions (CASAA); 2005.