

## Introduction

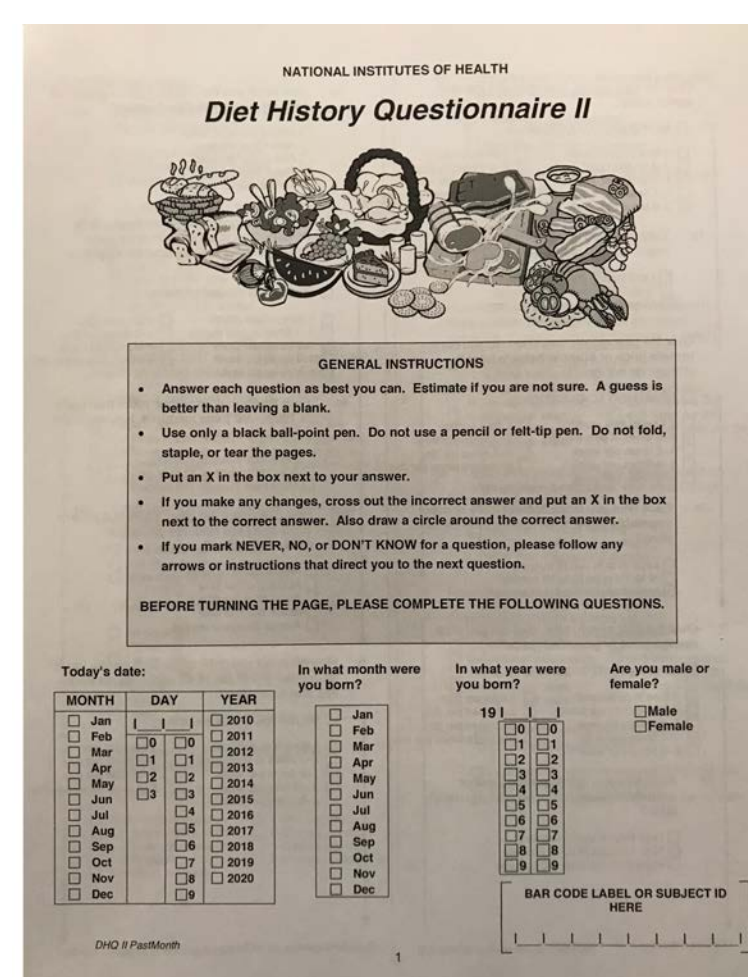
- Infertility is a major health concern as it affects up to 25% of couples in Western Countries (1).
- More couples are seeking fertility treatments causing reproductive technology use to go up, costing the health care system a substantial amount of money (2&3).
- There is a need to identify modifiable behaviors that could be linked to fertility.

## Objective

- The primary purpose of this project was to examine the relationships between time-to-conception, diet, and physical activity levels.
- The secondary purpose was to explore other modifiable variables that could be linked to time-to-conception (e.g. stress, oral contraceptive use, relevant partner history, financial barriers).

## Methods & Materials

- Participants were selected from an ongoing pregnancy study.
- All participants went on to have healthy pregnancies.
- Participants completed a Qualtrics electronic survey regarding how long it took them to conceive, what methods they had to employ, and if they ever had to seek treatment.
- Detailed information regarding their dietary and exercise habits while trying to conceive was also collected (Diet: Dietary History Questionnaire II, physical activity: Actigraph accelerometers).
- Additional questions regarding medication use, stress, financial barriers, male factor fertility, and pertinent health history were also obtained.
- Pearson product moment correlation coefficients were used to examine the relationships between variables.

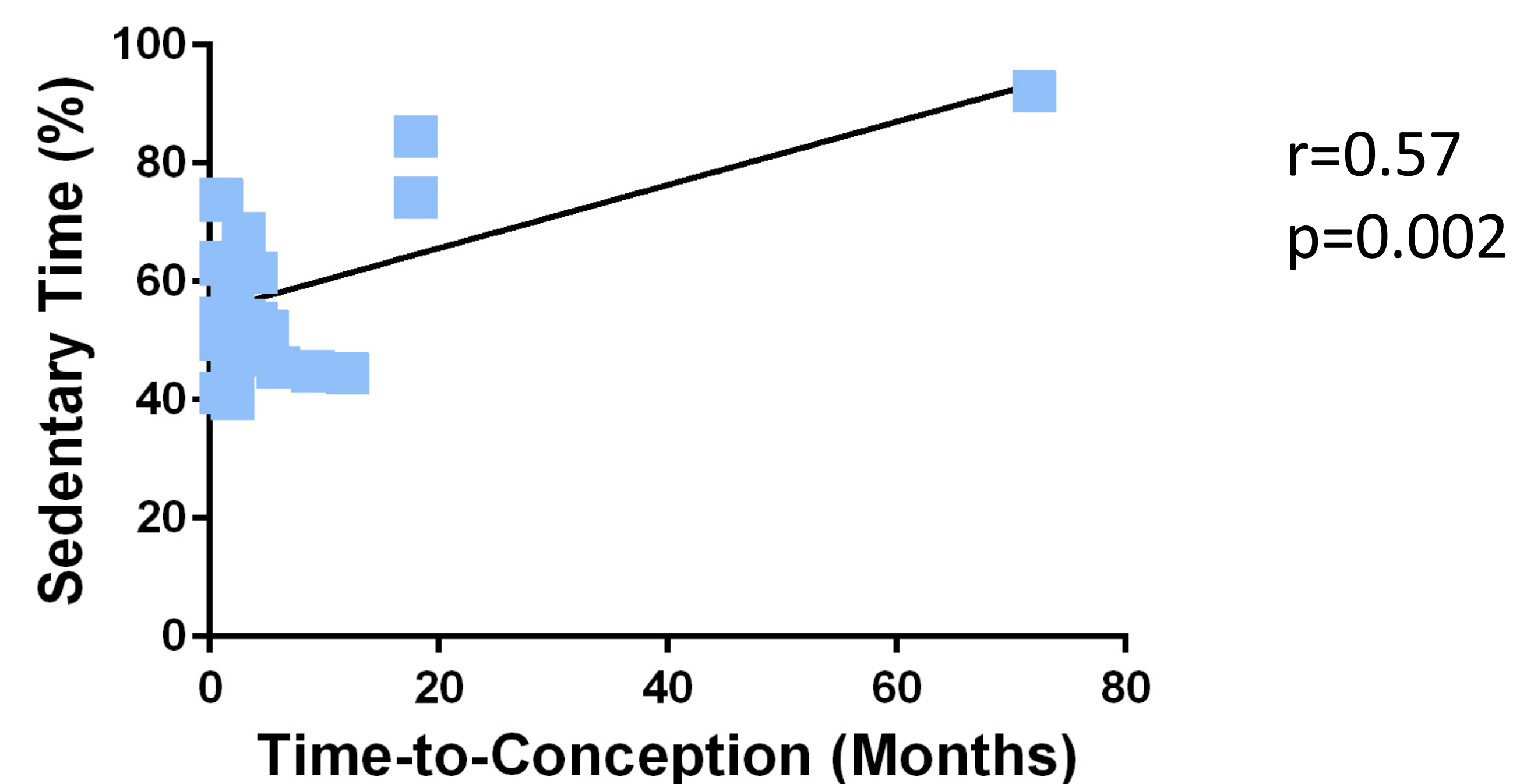


## Results

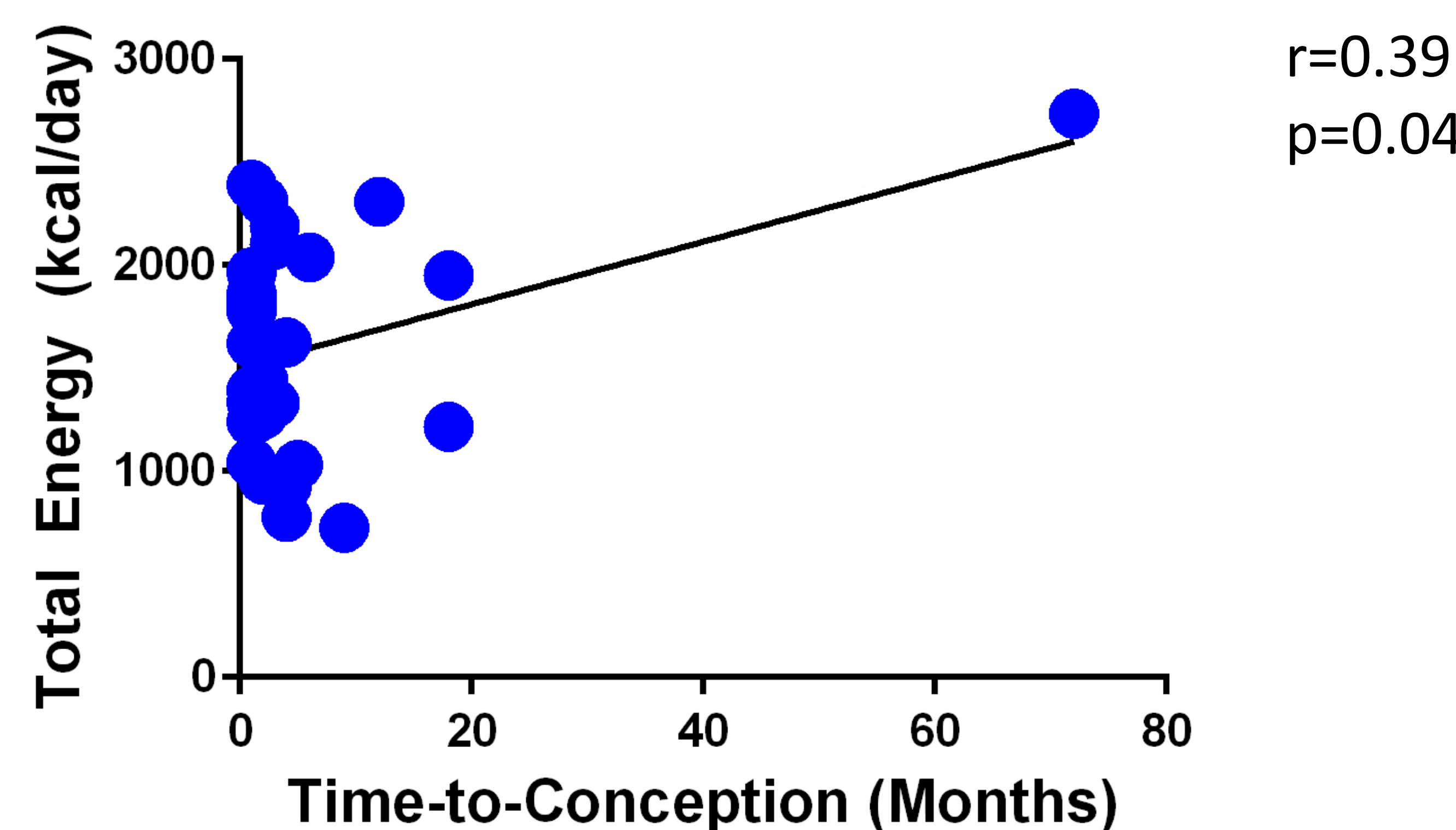
**Table 1. Demographic Characteristics**

Variable (N=29)	Mean ±SD or # (%)
Age (years)	29.10 ± 3.7
Pre-Pregnancy BMI (kg/m <sup>2</sup> )	26.3 ± 6.5
Education Level	
High School Graduate	1 (3.4%)
Some College	1 (3.4%)
College Graduate	15(51.7%)
Post Graduate Degree	12(41.4%)
Ethnicity	
Caucasian	33 (100%)

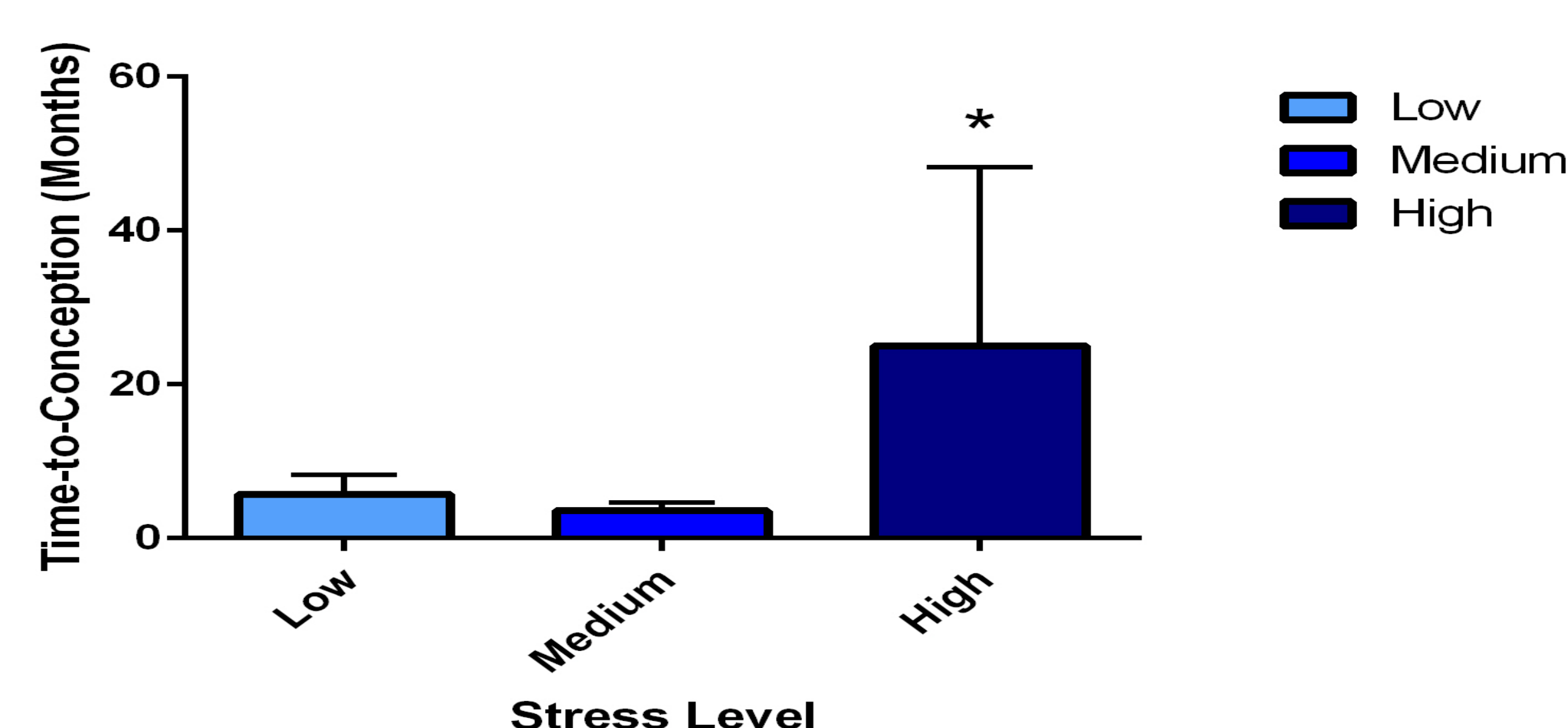
**Figure 1. Sedentary Time and Time-to-Conception**



**Figure 2. Total Dietary Kilocalories and Time-to-Conception**



**Figure 3. Stress Level and Time-to-Conception**



## Results, Ct.

- The amount of time it took to conceive (TTC) ranged from 1 month to 6 years.
- TTC and sedentary time were positively correlated ( $r=0.57$ ,  $p=0.002$ ),
- Light, moderate, and vigorous activities were not correlated to TTC.
- Regarding diet, TTC was positively correlated with total calories consumed ( $r=0.39$ ,  $p=0.04$ ) and total carbohydrates consumed ( $r=0.72$ ,  $p<0.001$ ). Interestingly, total energy from fat was negatively correlated with TTC ( $r=-0.57$ ,  $p=0.002$ ).
- Time to conception was longer for women who had previously used oral contraceptives ( $2.65 \pm 2.64$  vs.  $20.2 \pm 26.4$  months,  $p=0.005$ ).
- A one-way ANOVA demonstrated women with higher stress levels had longer TTC ( $p=0.044$ ).

## Discussion

- Women hoping to conceive should consider decreasing time spent sedentary as well as their total caloric intake and total carbohydrate intake in order to conceive sooner.
- Women should also consider strategies to decrease stress levels while trying to conceive.
- This study supports the idea that diet, activity level (or lack thereof), and fertility status may be closely related.
- These topics should be carefully discussed with a health care provider when trying to conceive.

## Literature Cited

1. M.E. Thoma, A.C. McLain, J.F. Louis, et al. Prevalence of infertility in the United States as estimated by the current duration approach and a traditional constructed approach. *Fertil Steril*, 99 (2013), pp. 1324-1331.e1.
2. R. Slama, D.K. Hansen, B. Ducot, et al. Estimation of the frequency of involuntary infertility on a nation-wide basis. *Hum Reprod*, 27 (2012), pp. 1489-1498.
3. Preliminary SART Clinic Summary Report: SART (Society for Assisted Reproductive Technologies), 2015 (vol 2017).
4. B.V. Rossi, L.H. Bressler, K.F. Correia, S. Lipskind, M.D. Hornstein, S.A. Missmer. Lifestyle and in vitro fertilization: what do patients believe? *Fertil Res Pract*, 2 (2016), p. 11.
5. A.J. Gaskins, J.E. Chavarro. Diet and Fertility: A review. *American Journal of Obstetrics and Gynecology*. In press. (Aug 2017).
6. Sarah R. Crozier, Sia' n M. Robinson, Keith M. Godfrey, Cyrus Cooper, and Hazel M. Inskip. Women's dietary patterns change little from before to during pregnancy. *Journal of Nutrition*. (2009). P.1956-1963.

## Acknowledgements

WKU FUSE GRANT: 18-SP230  
 Kentucky Biomedical Research Infrastructure  
 Network IDEa Grant: 5P20GM103436