*Introduction:* This study focused on exploring whether type-2 diabetes affects longitudinal changes in peripapillary retinal nerve fiber layer thickness(pRNFL).

*Methods:* The study included 63 healthy individuals as the control group, 49 type-2 diabetes patients with non-diabetic retinopathy(non-DR), and 52 type-2 diabetes patients with nonproliferative DR (NPDR). The diabetes patients enrolled in the study are patients who visited the Retina and Vitreous Clinic of Chungnam National University Hospital for a checkup of DR from January 2013 through February 2015. All participants need to be measured every year for 3 years of their best-corrected visual acuity (BCVA), intraocular pressure(IOP), axial length and have dilated biomicroscopy, dilated fundus examination, photography, and spectral-domain optical coherence tomography (SD-OCT) to measure the pRNFL, which is the main outcome. The pRNFL will be measured by 4-quadrant sectors (superior, inferior, nasal, and temporal). The participant’s sex and age, duration of type-2 diabetes, hypertension, and hemoglobin(HB) were also be recorded at the baseline. The value of other predictors of the following models come from the test measurement and previous medical record. The study used 1-way analysis of variance(ANOVA) with Bonferroni correction and the chi-square test to test whether there is a significant difference in baseline demographics and OCT measurements between treatment groups. The HBand duration of diabetes between two diabetes patient groups are compared by the 2-tailed t-test. The study used repeated-measures ANOVA to analyze longitudinal changes in RNFL thickness in each group. The study also fitted linear mixed effect models with random intercepts, with the response variables being the mean and 4-quadrant sectors of pRNFL. The predictors of the models are age, sex, duration of diabetes, HB level, spherical equivalent, BCVA, axial length, IOP, baseline pRNFL thickness, and follow-up duration as the fixed effects. The models also include the interaction term between the group and follow-up duration to research the reduction rate in pRNFL thickness over time between three groups. To research what factors are associated with the changes in mean pRNFL, the study also fitted multiple univariate linear mixed effect models with each of previously fixed effects as predictors in each univariate linear mixed model. The factors that are significant at the significance level of 0.05 in the univariate models will be included in the multivariate linear mixed-effects model to research the independence of the effects.

*Critique:* We identify there are three major problems in this analysis. First of all, the conclusions regarding the rate of change in pRNFL thickness over time had some problems. The authors provided the ratio of the estimated rate of change between two groups as the result, which is a 2.9-fold faster rate of reduction in the non-DR group than the control group. This number should be 2.6 according to the data given in the article. The way the author calculated the 95% CI of the ratio of the estimated rate of change, where they simply took the smallest and largest ratio calculated from the 95% CI of the two concerned groups, also seemed a little problematic. In addition, the authors did not specify how they obtained the pairwise p-value. Despite the problems in the conclusions for the rate of change in pRNFL thickness, the authors also failed to state their model clearly, since they did not specify whether they used random intercept or something else in the linear mixed models, for their secondary analysis to identify the factors associated with longitudinal changes in pRNFL thickness. The last problem is missing data. From their data in the Results section, they recruited 204 patients in total and excluded 24 patients lost to follow-up, which was more than 10% of the participants. Since the authors did not specify how many times the patients failed to come to follow-up, it seemed a little brutal to delete all the patients with some missing data. One of the limitations would be the severity status of diabetes might change in the 3 years, so only including baseline HB would not be sufficient. This was discussed by the authors as well.