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Evaluation of orthodontists' perception of treatment need and the peer assessment rating (PAR) index

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ABSTRACT

This paper examines the relationship between orthodontists' subjective assessment of treatment need and objective measurements obtained during standardized intra- and extraoral examinations. Logistic regression modeling was used to develop predictive models of treatment need. Data were obtained from 1155 eighth-grade students by four orthodontists who used standardized examination forms to assess demographics, trauma, skeletal relationships, morphologic malocclusion traits, and mandibular function. At the conclusion of the examination, the orthodontist rated the subjective treatment need as none, elective, recommended, soon, or immediate. For some analyses, the categories were collapsed to represent no need and need. The peer assessment rating (PAR) index (American validated version) was computed from the clinical exam findings and scoring of dental models; PAR scores were used to document malocclusion severity and treatment difficulty. Spearman rank correlation coefficients quantified the relationship between PAR scores and need categories. Logistic regression analysis modeled treatment need using components of the PAR index as well as other variables. The components of these models, as well as sensitivity and specificity, were compared with malocclusion severity/treatment difficulty scores obtained from malocclusion assessments using the PAR index. The five subjective treatment need categories and the PAR index scores were significantly correlated (rho=0.62, $p<0.001$). Significant differences were detected between the need and no need groups for all PAR components ($p<0.001$). PAR index scores and predicted probabilities from logistic regression models performed equally well for classification purposes (no need, need). The data suggest that the PAR index is highly correlated with orthodontists' subjective assessment of treatment need when that assessment is made in the

absence of financial considerations and patient desires.

KEY WORDS: Treatment need, Malocclusion severity, Peer assessment rating index, Sensitivity, Specificity.

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