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Development and validation of a sunlight exposure questionnaire for use among urban adult Filipinos

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OBJECTIVE
To develop and validate a self-reported sunlight exposure questionnaire (SEQ) for use in an urban adult Filipino population.

METHODS
The study included urban adult residents in Metro Manila, Philippines, who are well-versed in the Filipino language. Exclusion criteria included pregnancy, active skin disorders, and immunocompromised states. An expert panel was formed to create a questionnaire in Likert scale format based on four existing instruments. The study proceeded in five phases: conceptual framework development using focus group discussions, questionnaire item development, translation and back-translation, pretesting, and construct validity and reliability testing using factor analysis, Cronbach's-alpha coefficient, and the paired t-test. Statistical significance was defined as $p<0.05$.

RESULTS
A 25-item self-administered Filipino SEQ answerable by a 4-point Likert scale was created. The questionnaire was administered to 260 participants twice with a two-week interval. All questionnaire items possessed adequate content validity indices of at least 0.83. After factor analysis, three questionnaire domains were identified: intensity of sunlight exposure, factors affecting sunlight exposure, and sun protection practices. Internal consistency was satisfactory for both the overall questionnaire (Cronbach's-alpha 0.7970) and for each of the domains (Cronbach's-alpha 0.7375, 0.7079, and 0.7147, respectively.) No statistically significant differences were observed in the responses between the first and second tests, indicating good test-retest reliability.

CONCLUSION
We developed a culturally-appropriate SEQ with sufficient content validity, construct validity, and reliability to assess sunlight exposure among urban adult Filipinos in Metro Manila, Philippines. The questionnaire can be eventually utilized to evaluate associations with the gold standard, serum 25-hydroxyvitamin D levels.