

“Chemo-Radiation Induced Oral Mucositis Assessment Scale” (CRIO-MAS) to Monitor Symptom Severity among Cancer Patients Receiving Treatment Modalities in Selected Hospitals of Ambala, Haryana: A Pilot Study

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ABSTRACT

Introduction: Oral mucositis is a common and debilitating complication among cancer patients undergoing chemotherapy and radiotherapy, significantly affecting nutritional intake, communication, treatment compliance, and overall quality of life. Despite its high prevalence, there is a lack of comprehensive and standardised instruments for assessing the severity of chemo-radiation-induced oral mucositis. Therefore, the present methodological study was undertaken to develop, validate, and assess the feasibility of the Chemo-Radiation Induced Oral Mucositis Assessment Scale (CRIO-MAS) for effective clinical assessment and symptom monitoring.

Materials and Methods: A methodological research design was adopted for the development and validation of the CRIO MAS; items were generated through literature review and clinical observations. Content validity was established using the modified Delphi technique with 15 experts through four Delphi rounds using a controlled feedback method to achieve consensus on the relevance and clarity of the items. Reliability was assessed through internal consistency and inter-rater reliability. Pilot testing and feasibility assessment were conducted among 50 cancer patients to evaluate the applicability and practicability of the tool. Construct validity and sample suitability will be assessed by using exploratory factor analysis, Kaiser-Meyer-Olkin (KMO) measure, and Bartlett's Test of Sphericity, while diagnostic accuracy was evaluated using Receiver Operating Characteristic (ROC) curve analysis. The final study will

be conducted among 170 cancer patients receiving chemotherapy and/or radiotherapy selected through purposive sampling.

Results: Diagnostic accuracy analysis was performed to determine the optimal cutoff point of the CRIO-MAS for identifying the severity of oral mucositis among cancer patients. A cutoff score of >11.50 was identified as the most appropriate threshold, demonstrating a sensitivity of 94.9% and specificity of 72.7%. The Positive Predictive Value (PPV) was 92.5%, indicating a high probability of correctly identifying patients with oral mucositis, while the Negative Predictive Value (NPV) was 80.1%, reflecting the tool's ability to accurately identify patients without significant mucositis. These findings indicate that the CRIO-MAS possesses good diagnostic accuracy and can effectively be utilised for early detection and clinical assessment of chemo-radiation-induced oral mucositis.

Conclusion: The CRIO-MAS was found to be a feasible, valid, and reliable instrument for assessing chemo-radiation-induced oral mucositis among cancer patients. The scale demonstrated strong content validity, construct validity, reliability, and diagnostic accuracy. Its use in clinical practice can support early identification, systematic assessment, and timely management of oral mucositis. Therefore, CRIO-MAS may serve as an effective clinical and research tool to improve patient monitoring and enhance the quality of oncological care.

Keywords: Cancer, Chemotherapy, CRIO-MAS, Oral mucositis, Radiotherapy.

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