

# Dental Erosion Epidemiological Survey in Patients on Alcoholic Detoxification – BEWE Approach



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## Introduction

Individuals with abusive alcohol behaviours are a risk group for dental erosion due to chronic and cumulative exposure to extrinsic and intrinsic factors, that come from frequent regurgitation and an acidogenic diet.

## Objectives

To quantify dental erosion prevalence and severity in patients on alcoholic detoxification and to determine associated risk factors.

## Material and Methods

Analytical cross-sectional study conducted to measure dental erosion in 300 institutionalized patients for alcohol detoxification in Withdrawal Units -"IDT Norte". A self-report questionnaire was registered, regarding socio-demographic characteristics, pathologies, alcohol/drugs consumption behaviours and oral hygiene measures. Clinical examination was performed with BEWE approach to quantify erosion. A logistic regression model was applied to identify variables/factors significantly associated to dental erosion risk ( $p = 0.05/0.10$  inclusion/exclusion).

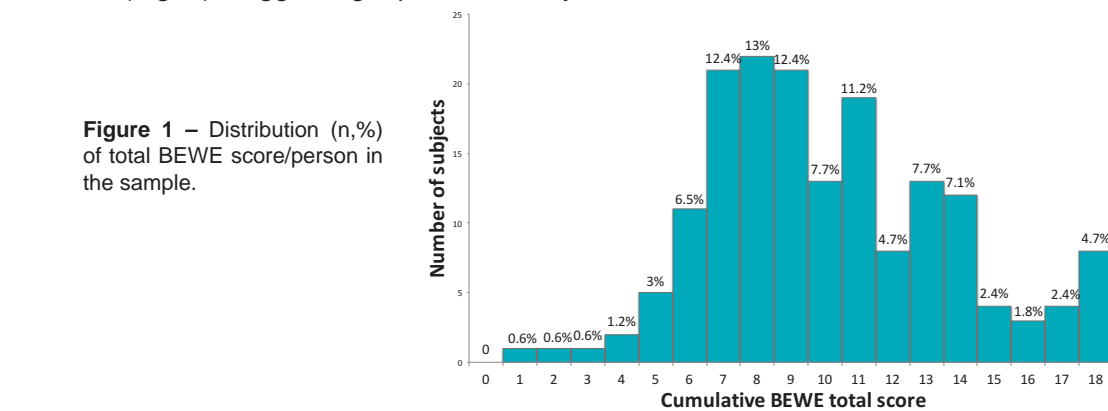
## RESULTS

The BEWE system was used in 169 patients, given the requirement of having at least two teeth by sextant; 83.3% of the sample were men with a mean age of  $42.2 \pm 8.6$  years. The history of alcohol consumption (time abuse and quantity) is characterized in Table 1.

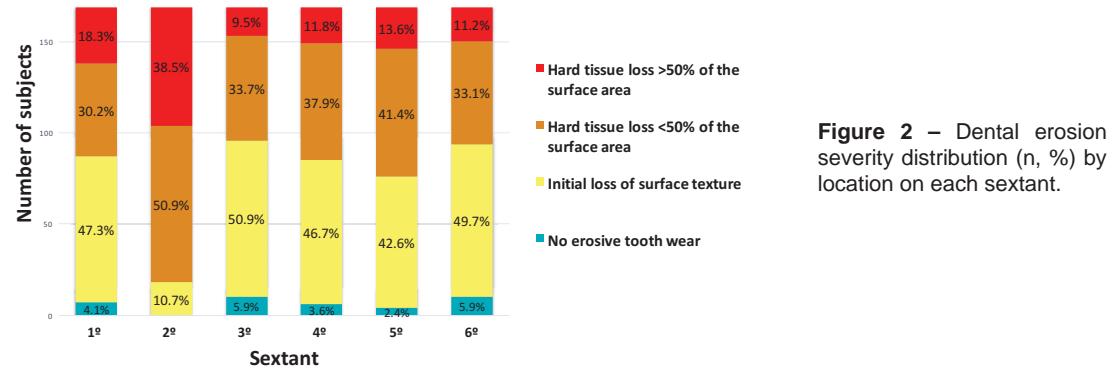
**Table 1** – Sample characterization of alcoholics consumption behaviours

Variables	Mean $\pm$ Standard Deviation	Min-Max
Age(Years)	42.2 $\pm$ 8.6	22-70
Age of first contact with alcohol (years)	17.0 $\pm$ 7.0	5-45
Years of excessive consumption	20.3 $\pm$ 11.1	1-57
Amount of alcohol (pure) ingested per day (g/L)	204.4 $\pm$ 119.2	29-469

Dental erosion's prevalence was 100%, with 62.1% of individuals categorized as medium/ high risk. Average BEWE total score was  $10.1 \pm 3.56$  (Fig. 1). The anterior maxillary area (2nd sextant) had a larger number of surfaces with more severe erosive lesions (Fig. 2), suggesting a predominantly intrinsic source of erosion.



**Figure 1** – Distribution (n, %) of total BEWE score/person in the sample.



**Figure 2** – Dental erosion severity distribution (n, %) by location on each sextant.

Multivariate analyses (logistic regression, Table 2) showed that female gender (OR=23.0 (95%CI:2.5-212) and, not using mouthwashes (OR=5.6 (95%CI:1.7-20) are significantly associated with medium/high risk of tooth erosion ( $p < 0.05$ ).

Time with gastro-oesophageal disease lasting more than 1 year is non-significantly associated with dental medium/high erosion risk ( $p = 0.057$ , OR=3.2 (95%CI:0.96-10.7)).

**Table 2** – Univariate and multivariate analysis on dental erosion risk factors

Variables	Category	Dental erosion risk (n=169)		UNIVARIATE analysis (n=169)		MULTIVARIATE analysis (n=99)	
		No risk or low risk Total BEWE $\leq$ 8	Medium risk or high risk Total BEWE $\geq$ 9	p	OR (95% CI OR)	p	OR (95%CI OR)
Gender	Male	60	79	0.001	1	0.006	23.05 (2.5;212.5)
	Female	3	27				
Age Group (years)	< 40 years	26	31	0.126	1		
	$\geq$ 40 years	34	68				
Academic degree	Until 9 <sup>th</sup> grade	54	95	0.550	1		
	12 <sup>th</sup> grade	5	8				
	Graduated or higher	4	3				
Professional situation	Employee	44	66	0.520	1		
	Unemployed	16	31				
	Retired	3	9				
Smoking	Yes	54	76	0.037	1		
	No	9	30				
Mouthwash	Yes	19	16	0.019	1	0.006	5.56 (1.67;19.23)
	No	44	90				
Brushing after drinking alcohol	No	53	87	0.732	1		
	Yes	10	19				
Number of daily brushing	None	16	21	0.272	1		
	1-2 x/day	30	64				
	$\geq$ 3 x/day	17	21				
Drink fasting	No	21	31	0.578	1		
	Yes	42	75				
Drink before going to bed	No	19	28	0.599	1		
	Yes	44	78				
Vomit	No	40	66	0.873	1		
	Yes	23	40				
Frequency of vomiting	Never	40	66	0.141	1		
	At least once a week	5	19				
	At least once a day	18	21				
Drugs consumption	Yes	23	33	0.473	1		
	No	40	73				
Gastro-oesophageal pathology (n=99)	No	30	40	0.084	1		
	Yes	7	22				
GE pathology duration (years)	<1 year	31	41	0.062	1	0.057	3.21 (0.96;10.71)
	$\geq$ 1 year	6	21				

## Conclusions

This population showed a high prevalence and medium/high risk for dental erosion and, female gender and not using mouthwashes are significantly associated with risk for dental erosion.

## Clinical Implications

In dental erosion epidemiological analysis, BEWE approach allows the measurement of the diseases severity, determines the risk level allowing a guide towards clinical management.

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**Keywords**  
 Erosion  
 Alcoholism  
 BEWE  
 Erosive wear  
 Erosion prevalence  
 Erosive risk

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