

# 齒科技工室의 作業工程別 騒音에 관한 研究

대구보건전문대학 치기공과

*Abstract*

## **A Study on the Noise by working Process in Dental Laboratory**

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Degree of noise by personal dental laboratory working process and degree of noise by complex dental laboratory working process were measured separately. The time of exposure to noise greater than 70dB was analyzed. Then, the whole degree of noise in dental laboratory was estimated on the basis of afore-mentioned information. Questionnaire were employed to investigate the mental, emotional and physiological effects of noise in dental technicians, The purpose of this study was to provide basic information on keeping dental technicians who are exposed to noise pollution in good working condition and good health.

Results obtained are as follows ;

1. Polishing process in each working part showed high degree of noise greater than 70dB in terms of degree of noise by personal working.
2. Degree of noise by complex working process in each working part was greater than that of personal working process.
3. Time of exposure to noise complex working process the part of porcelain 150min, partial denture 120 min, crown and bridge 100 min, full denture 80 min.
4. Degree of noise by time in dental laboratory was 80dB in general for polishing process and below 75dB for waxing process.
5. Effects of noise on mental and emotional state of dental technicians showed that they felt irritated every day(14%), irritated once in a while(29%) and easily get mad(19%)
6. Effects of noise on heart and stomach were hyper-gastric acid(38%), gastric ulcer(11%), gastritis(5%), duodenal ulcer(3%) and weak heart function(32%)
7. Effects of noise in the hearing ability were weak(39%), moderate(33%) and normal(14%)

Data presented in this study demonstrated that noise in the dental laboratory exerts profound effect on dental technicians mentally, physiologically and emotionally, in light of the above results, therefore, it appears advisable to devote substantial on the management of working condition and put further(continuing) efforts in the investigation for reducing noise problem.

# 차 례

가가  
(International Standards Organizatio)

- 1.
- 2.
- 3.

40dB, 50dB, 60dB, 70dB

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

1

11), 29), 가, “ 가 ”, 6), 50%가, 50dB(A), 50-54dB(A), 45-49dB(A), 50dB(A), 30%가, 35-40dB(A), 8).

## 1. 서 론

“ 가 ”

1.4.6.9)

ASA(American Standard Association)  
“ Noise is any undesired sound ”

가, 8), (ACTH) 15.16) 70dB, ACTH가, 6), 5, 90dB(A), 1, 8, 20%, 80dB(A)-80dB(A), 가, 8).

가

“ 가 ”

가

가

12)

1.3.17.18)

Cr, <sup>12)</sup>가, 가, Ni, 1, 6) 70dB(A)

4) 3本 bridge (wax up) 1  
5) (resin) 1

3. 자료분석  
Minicab software program  
chi-square test

### III. 결과 및 고찰

#### 1. 작업부처별 1인작업시 공정별 소음도

## II. 연구대상 및 방법

### 1. 연구대상

73%, 66, 73, 100, peak (casting), 70dB(A) (vibrator), (Fig. 1)

### 2. 연구방법

1) ML-10A) (東特性) (Rion Fast, 가 (spindil) (sand blasting) 가 (Fig. 2)  
2) 가 (Leq) 3本 bridge 가 (Fig. 2)  
3) 1 peak가 (survey) 1 8)

(Fig. 3) collect) (dust peak 80dB(A)  
 , Wax (Fig. 4). 1  
 , (curing) 가 가

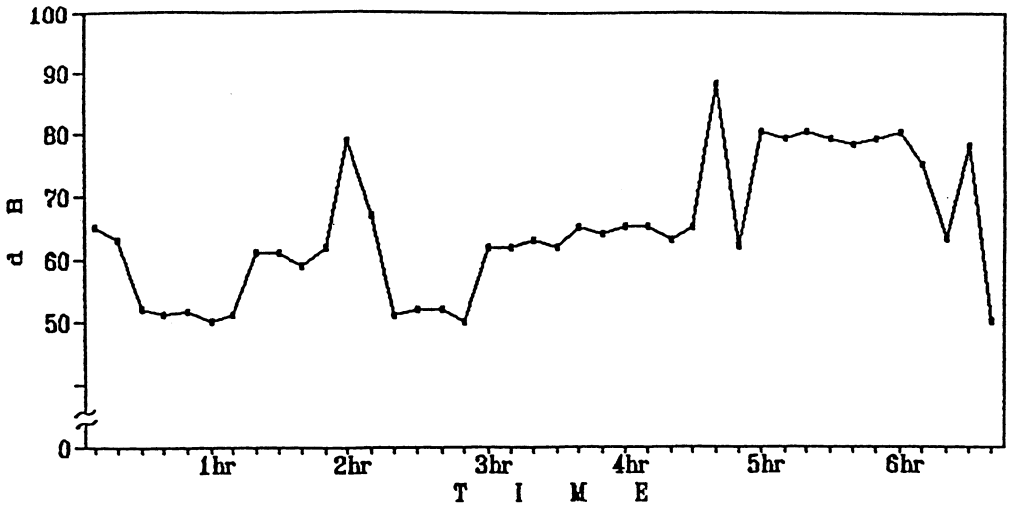


Fig 1. Degree of noise by personal dental laboratory working process in crown and bridge.

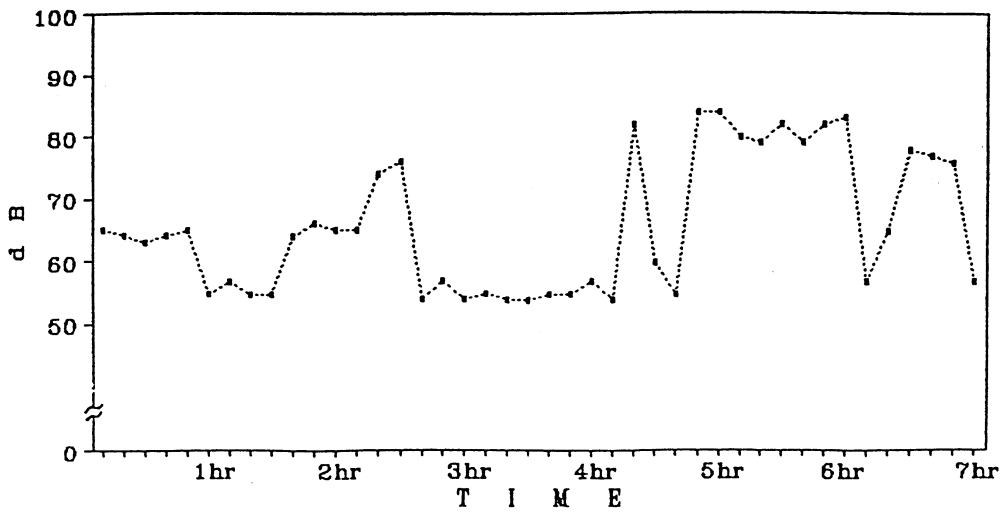


Fig 2. Degree of noise by personal dental laboratory working process in partial denture.

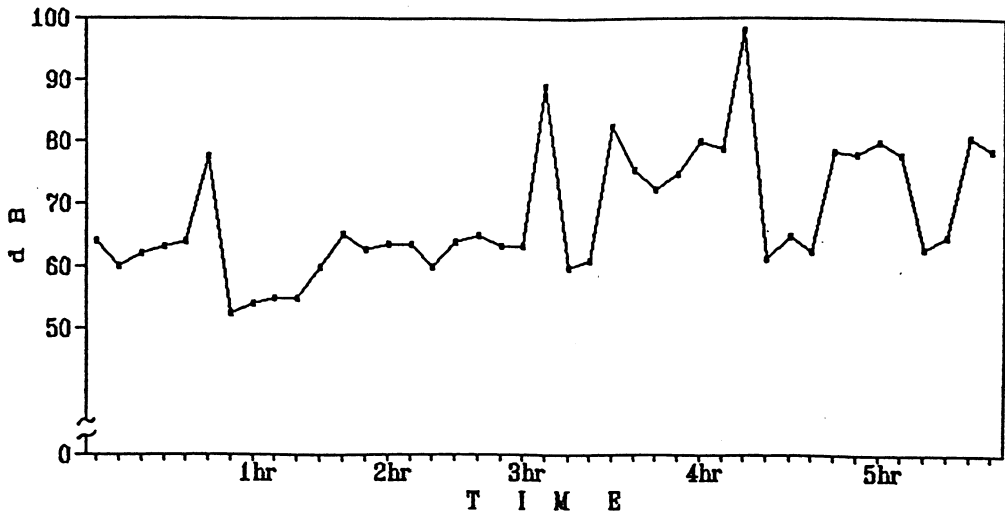


Fig 3. Degree of noise by personal dental laboratory working process in porcelain.

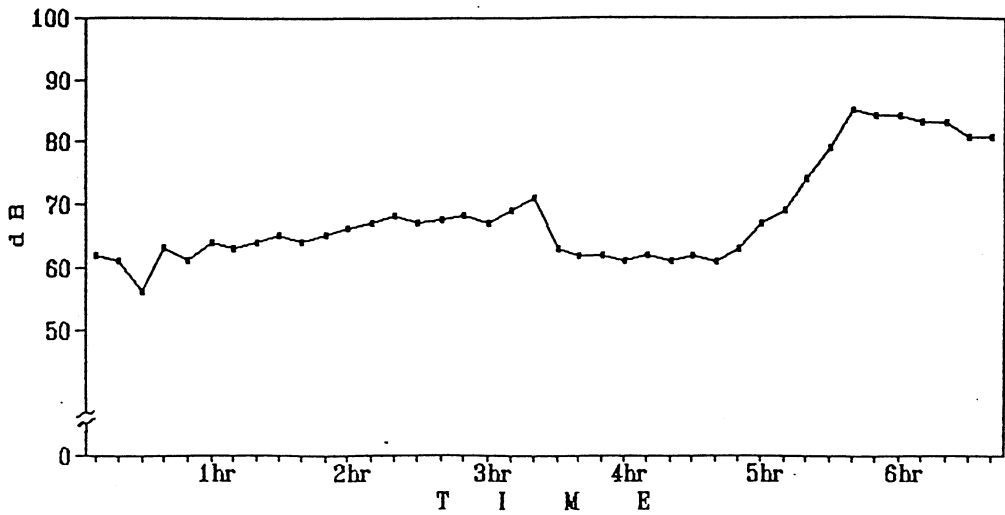


Fig 4. Degree of noise by personal dental laboratory working process in full denture.

2. 작업부서별 복합공정시 공정별 소음도

1  
가  
5dB

10dB  
(Fig. 5).

1  
가

(Fig. 6).

1  
 , peak 가  
 가  
 (Fig. 7).  
 가 (Fig. 9).  
 가 (42%) (48%)  
 70dB 가  
 (Fig. 8). 가  
 (Fig. 10).

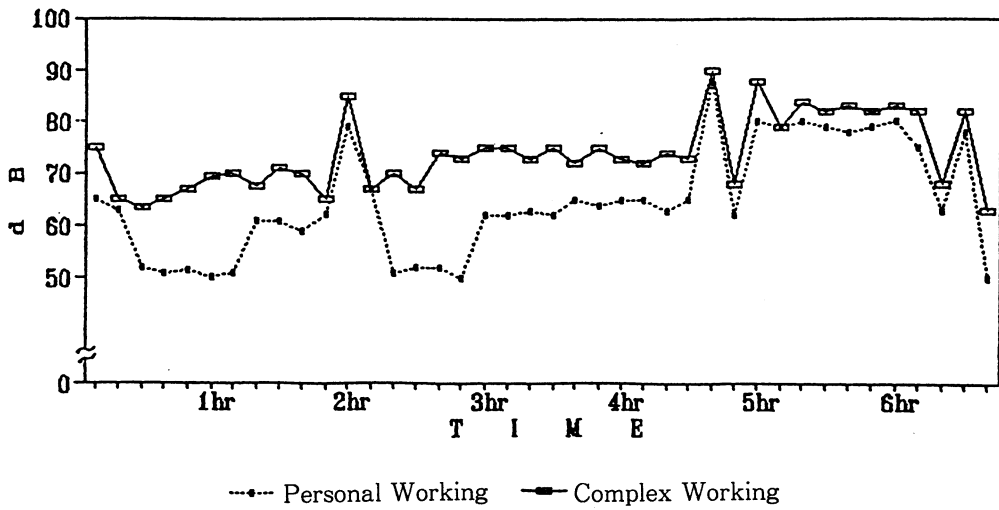


Fig 5. Degree of noise by personal dental laboratory working process in full denture.

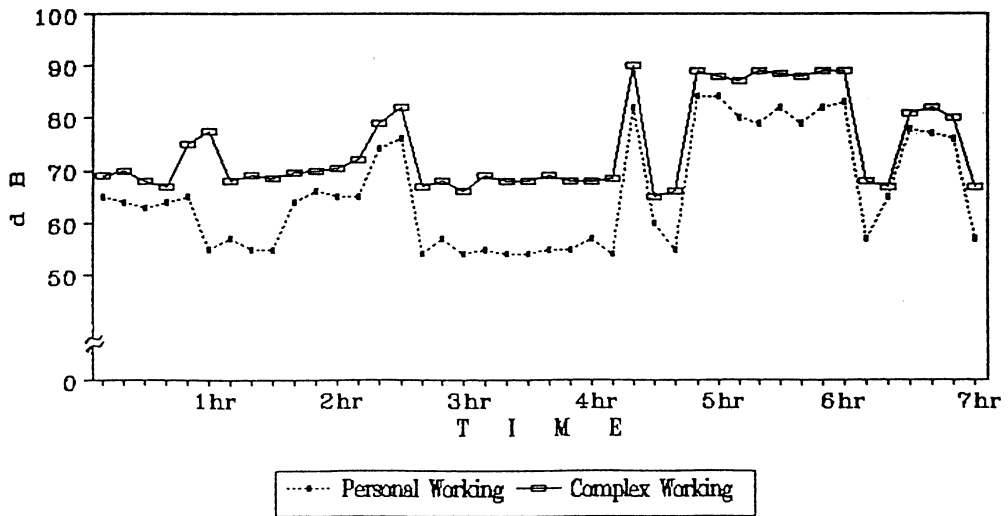


Fig 6. Degree of noise by personal dental laboratory working process in partial denture.

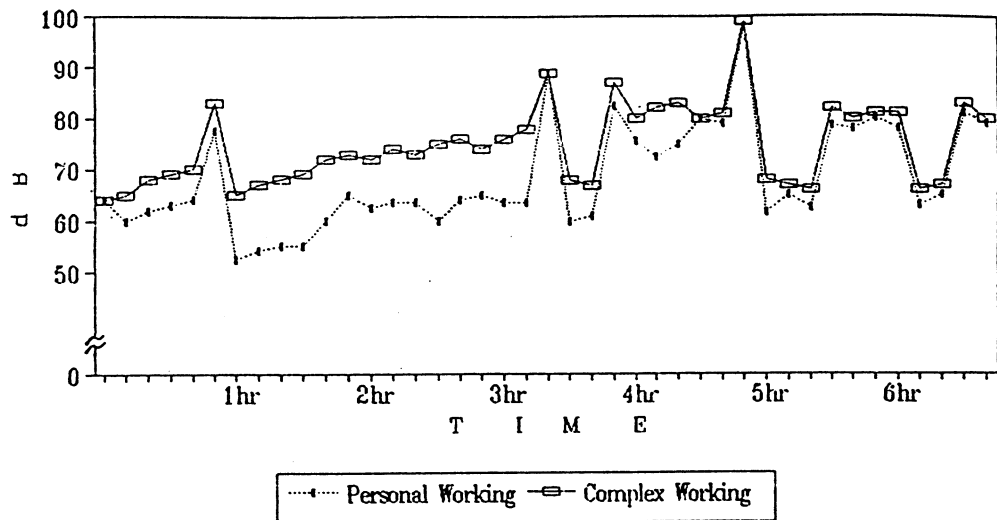


Fig 7. Degree of noise by personal dental laboratory working process in porcelain.

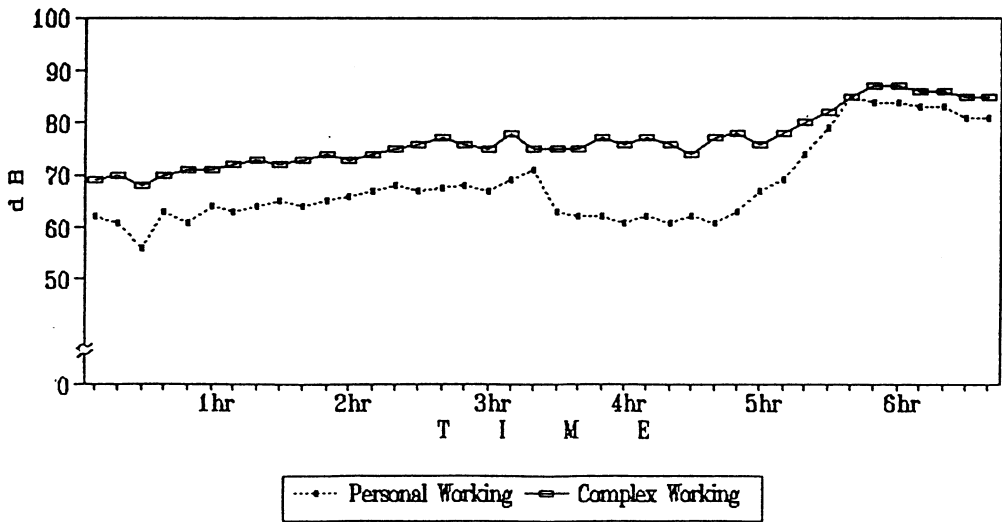


Fig 8. Degree of noise by personal dental laboratory working process in full denture.

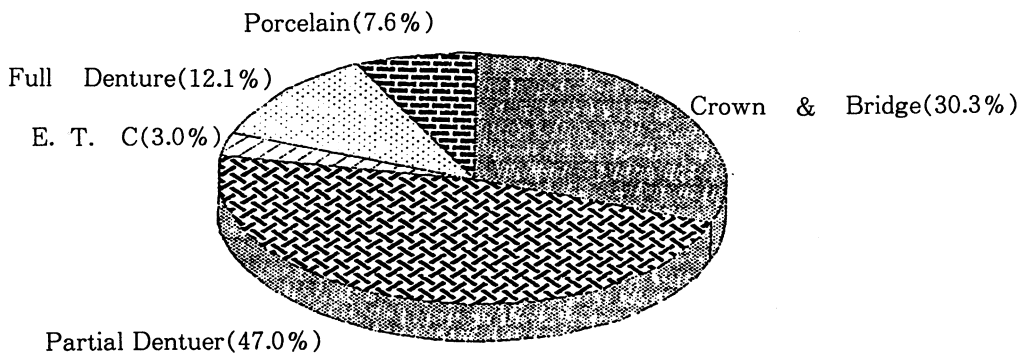


Fig 9. Part room of the most noise make in dental laboratory.



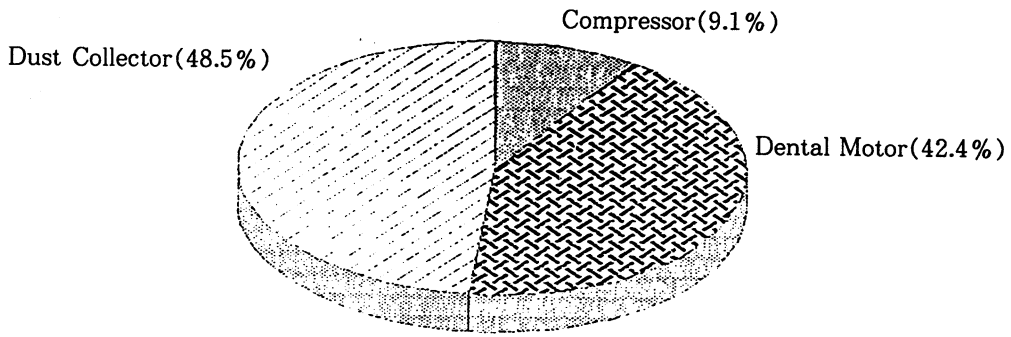


Fig 10. Machine of the most noise make during one day in dental laboratory.

### 3. 작업부서별 소음 노출 시간

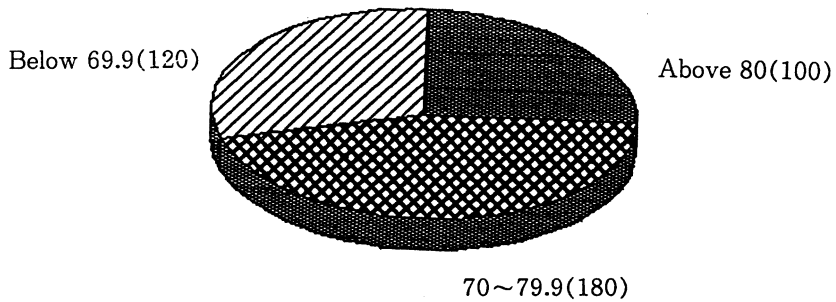
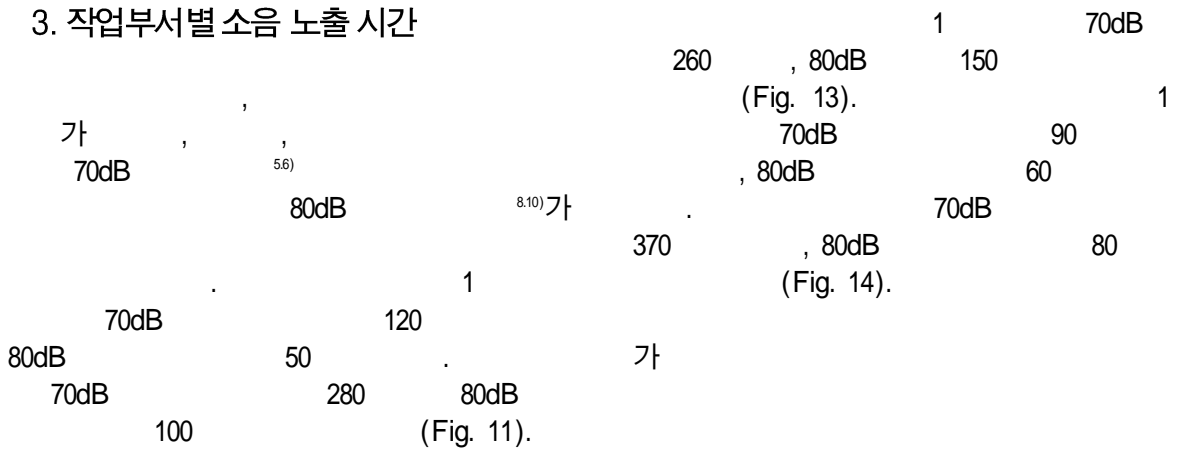


Fig 11. Time of exposure by noise crown and bridge making.



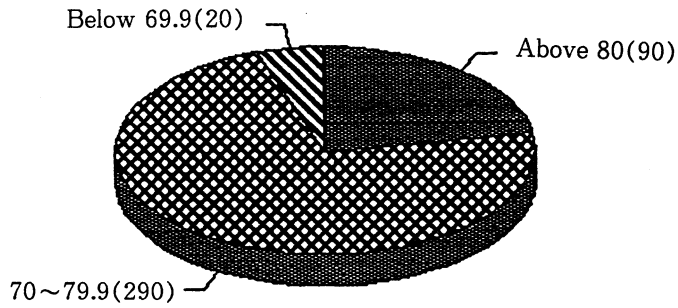


Fig 14. Time of exposure by noise in full denture making.

“ ”  
 1 -2 가 68%  
 2 가 60% 가  
 가 , 1 -2 ,  
 가 84% ,  
 2 가 57% (Table 1).  
 가

Table 1. Variation of noise during one working day.

	관교의치	국부의치	도재기공	총 의 치	기 타	계
	19(100.0)	19(100.0)	20(100.0)	7(100.0)	1(100.0)	66(100.0)
1시간이내	3(15.79)	1( 5.26)	1( 5.00)	0( 0.00)	0( 0.00)	5( 7.58)
2시간이내	6(31.58)	4(21.05)	5(25.00)	2(28.57)	1(100.0)	18(27.27)
3시간이내	2(10.53)	5(26.32)	5(25.00)	3(42.86)	0( 0.00)	15(22.73)
4시간이내	4(21.05)	1( 5.26)	3(15.00)	0( 0.00)	0( 0.00)	8(12.12)
5시간이내	4(21.05)	8(42.11)	5(25.00)	2(28.57)	0( 0.00)	19(28.79)
기 타	0( 0.00)	0( 0.00)	1( 5.00)	0( 0.00)	0( 0.00)	1( 1.52)

D. F. =20  $X^2 = 15.208$

1시간이내	9(47.37)	6(31.58)	3(15.00)	1(14.29)	0( 0.00)	19( 7.58)
2시간이내	7(36.84)	7(36.84)	12(60.00)	4(57.14)	2(100.0)	31(27.27)
3시간이내	3(15.79)	3(15.79)	1( 5.00)	2(28.57)	0( 0.00)	9(13.67)
4시간이내	0( 0.00)	3(15.79)	2(10.00)	0( 0.00)	0( 0.00)	5( 7.58)
5시간이내	0( 0.00)	0( 0.00)	2(10.00)	0(28.57)	0( 0.00)	2( 3.03)

D. F. =20  $X^2 = 15.208$

Wax

가  
가

가

가

가

가

wax

#### 4. 작업실의 시간대별 소음도

가

75dB

wax

가

80dB

70dB

(Fig.15).

가

가

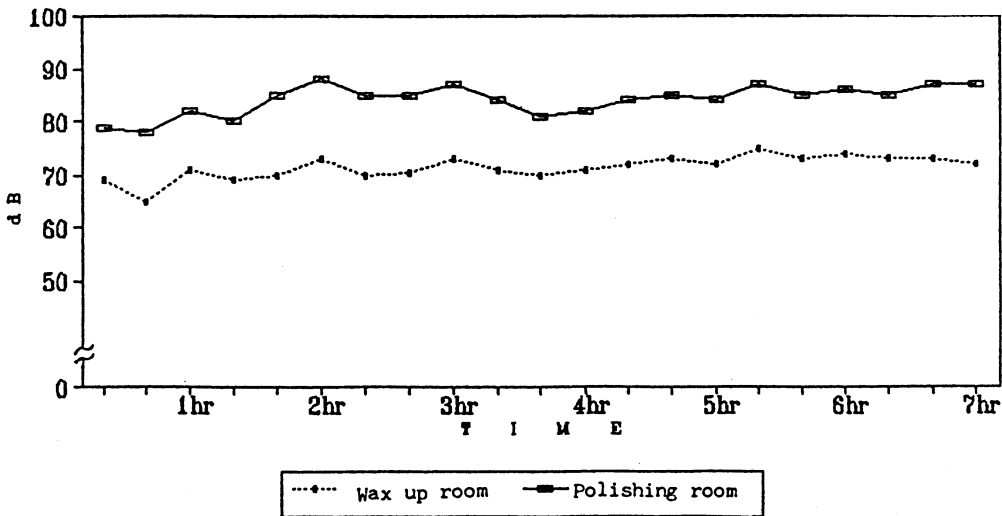


Fig 15. Degree of noise by in dental laboratory.

#### 5. 소음이 치과기공사의 심리 및 정서에 미치는 영향

21.22)

가

14.19.20)





70dB

## 참고 문헌

1. 가 1 70dB

2. 가 10dB

3. 가 80dB (150 ), (120 ), (80 )

4. 가 80dB Wax

5. 가 75dB (14%), 가 (29%) 가 (19%)

6. 가 39%, 11%, 5%, 3%, 가 32%

7. 가 39%, 33%, 14%

가

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