

Use of Clinical Photographs in the Diagnosis of Traumatic Dental Injuries

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PURPOSE

➤ The purpose of this study was to assess the effectiveness of clinical photographs in the diagnosis and treatment planning of Traumatic Dental Injuries (TDIs).

➤ A secondary objective was to determine if pediatric dentists find value in taking clinical photographs for TDIs.

BACKGROUND

The International Association of Dental Traumatology (IADT) “Strongly Recommend” clinical photographs at the initial visit and follow up appointments, however evidence is lacking to support the role of photographic documentation in dental trauma. Initial clinical exam of a traumatic dental injury (TDI) is a complex process. Recording the details as a baseline and potential medico-legal reasons.



METHODS

3 Part Survey Sent to 8,525 AAPD Members

Part 1

- Six Single-Tooth TDI Case Questions
- Parallel Crossover Design (2 Versions)
- 2 Mild, 2 Moderate, 2 Severe TDIs
- Each version had 1 photo per severity category

Written Description Only

Written Description


Clinical Photograph

3 Questions

3 Questions

Part 2

- Clinical Image of Complex TDI
- Select all Teeth with a TDI



Mark all traumatized teeth

Part 3

- Respondent's opinions on Clinical photograph use with TDIs
- Five Likert Scale Questions
- One Yes/No question on Barriers

1. Photos aided you in Part 1

2. Routine photo use at initial presentation of TDI

3. Photos save time

4. Photos should be taken for legal & documentation reasons

5. Photos helpful for insurance

6. Barriers to taking photos

Tooth #8

Fracture Injury: Complicated Crown Fracture

Periodontal Injury: Concussion

Mature Root and Closed Apex

No increased mobility

No other Dental Injuries

Tooth #8

Fracture Injury: Complicated Crown Fracture

Periodontal Injury: Concussion

Mature Root and Closed Apex

No increased mobility

No other Dental Injuries

RESULTS

Part 1

Table 1: Case Based Questions #1-6

Case	Number of Correct Answers (%)	Unadjusted Odds Ratio	95% CI	P-Value	Adjusted Odds Ratio	95% CI	P-Value		
Case #1 without image	226/254 (89%)	1.64	0.88	3.14	0.12	1.69	0.90	3.24	0.11
Case #1 WITH image	225/242 (93%)								
Case #2 without image	221/242 (91.3%)	0.68	0.38	1.22	0.20	0.68	0.37	1.22	0.20
Case #2 WITH image	223/254 (87.8%)								
Case #3 without image	143/254 (56.3%)	1.99	1.37	2.90	0.0003	2.06	1.41	3.03	0.0002
Case #3 WITH image	174/242 (71.9%)								
Case #4 without image	192/242 (79.3%)	1.18	0.75	1.84	0.47	1.14	0.73	1.81	0.56
Case #4 WITH image	208/254 (81.9%)								
Case #5 without image	218/254 (85.8%)	0.57	0.36	0.91	0.02	0.55	0.34	0.89	0.015
Case #5 WITH image	188/242 (77.7%)								
Case #6 without image	230/242 (95.0%)	0.89	0.40	1.98	0.78	0.95	0.42	2.14	0.90
Case #6 WITH image	240/254 (94.5%)								

Figure 1: Distribution of Selected Teeth with TDI from respondents

Part 2

Complex TDI Select All Teeth with a TDI

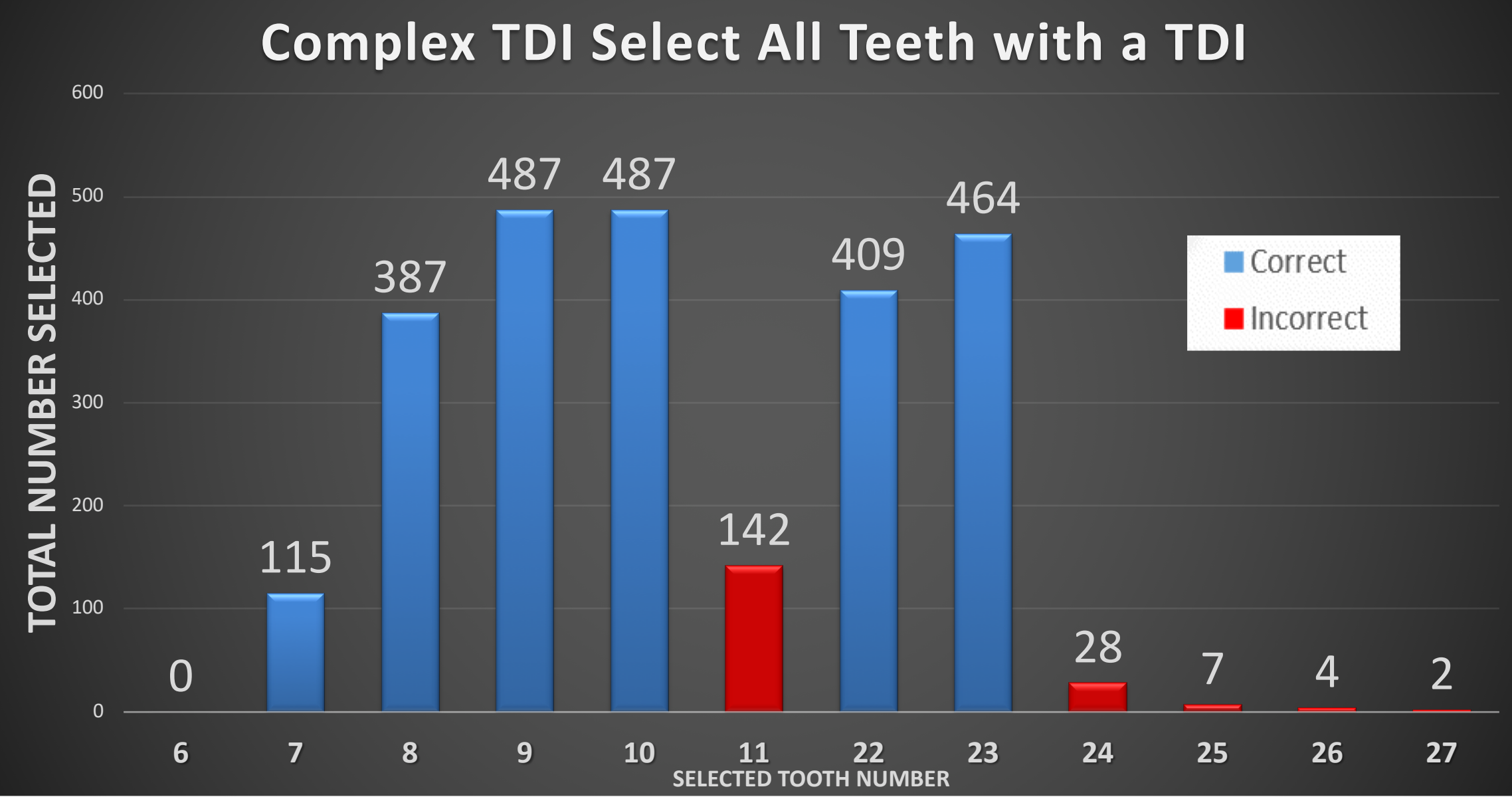


Figure 1: Distribution of Selected Teeth with TDI from respondents

Part 3

Photos Aided You in this Survey

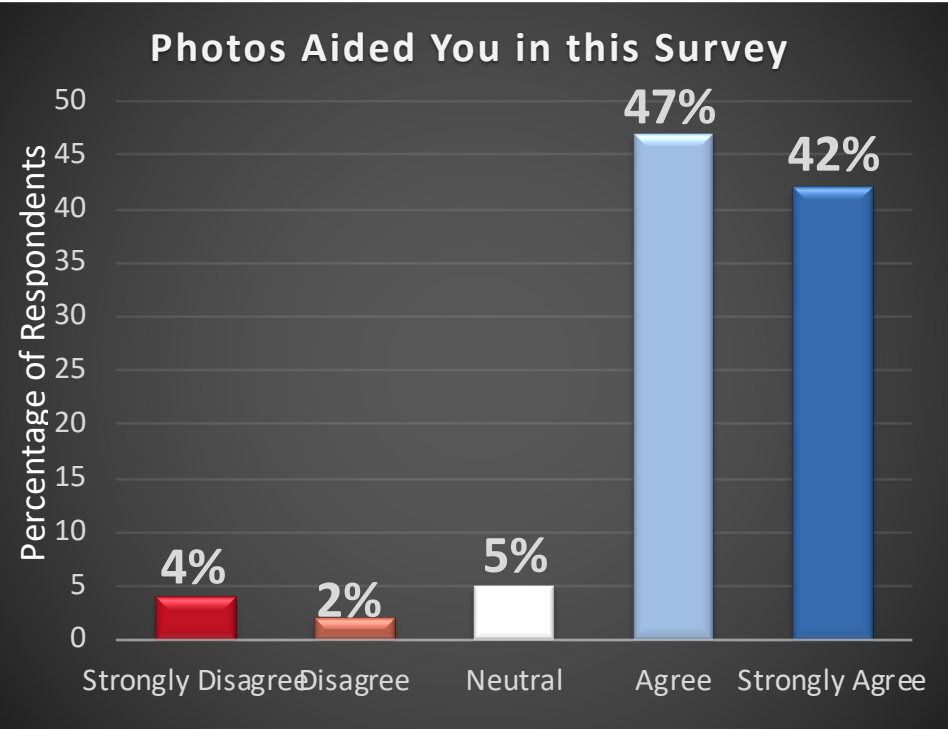


Figure 2

Photos of TDIs Should be Taken Routinely

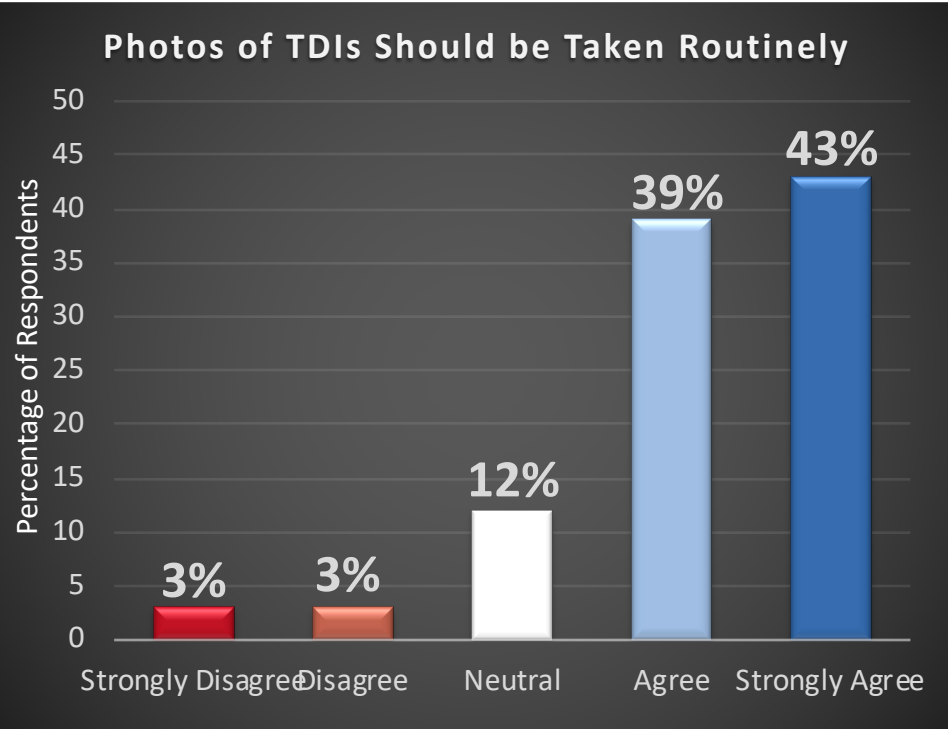


Figure 3

Taking Photos Saves Time

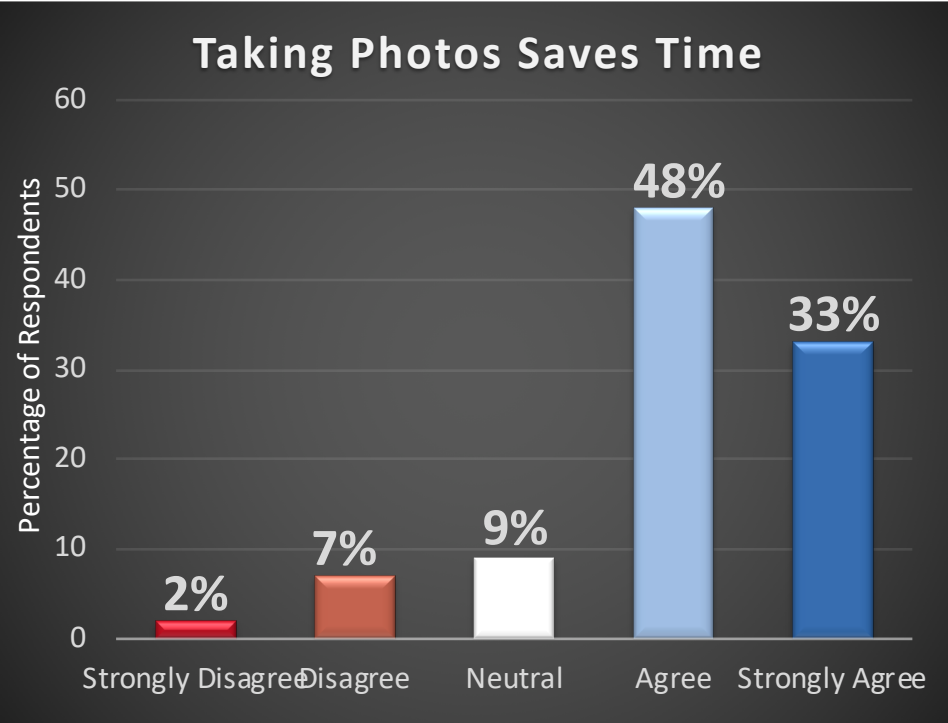


Figure 4

Photos Should Be Taken for Legal & Documentation Reasons

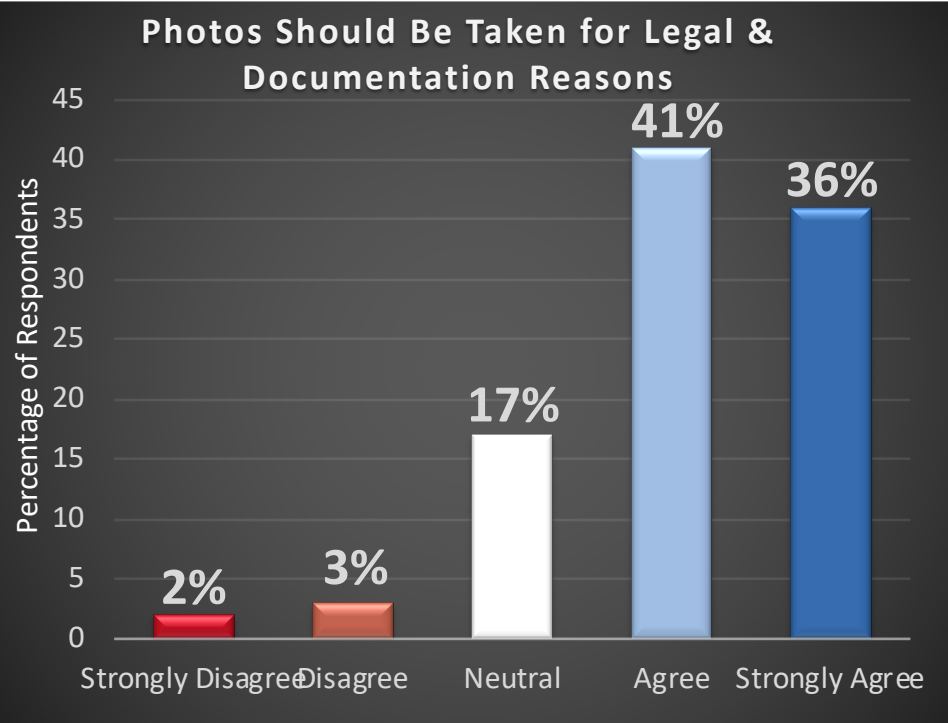


Figure 5

Photos are Helpful for Insurance

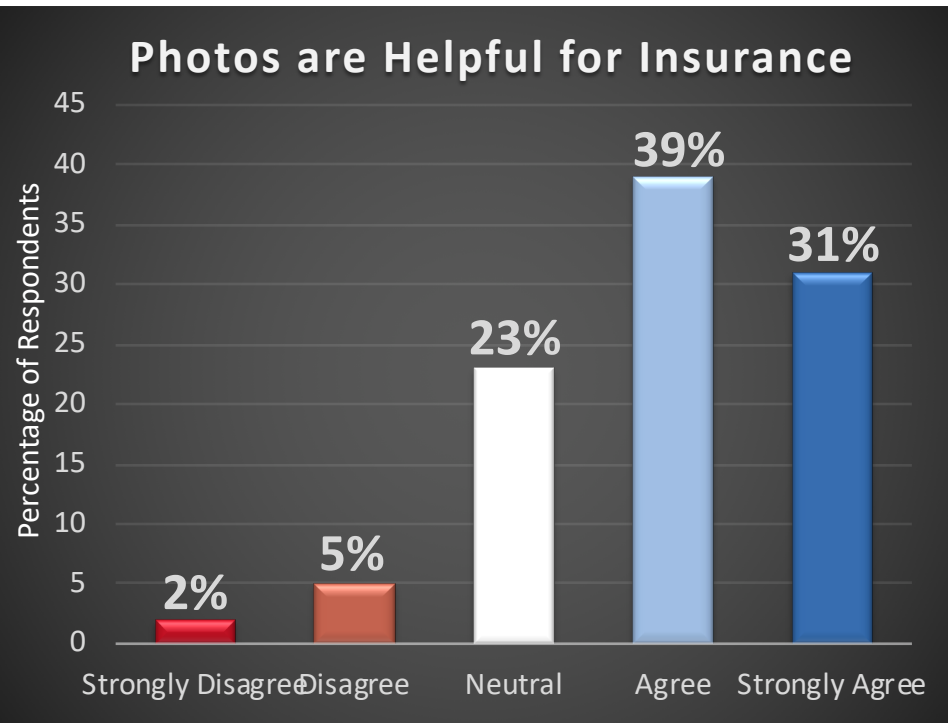


Figure 6

Is there a barrier to taking photographs in your practice?

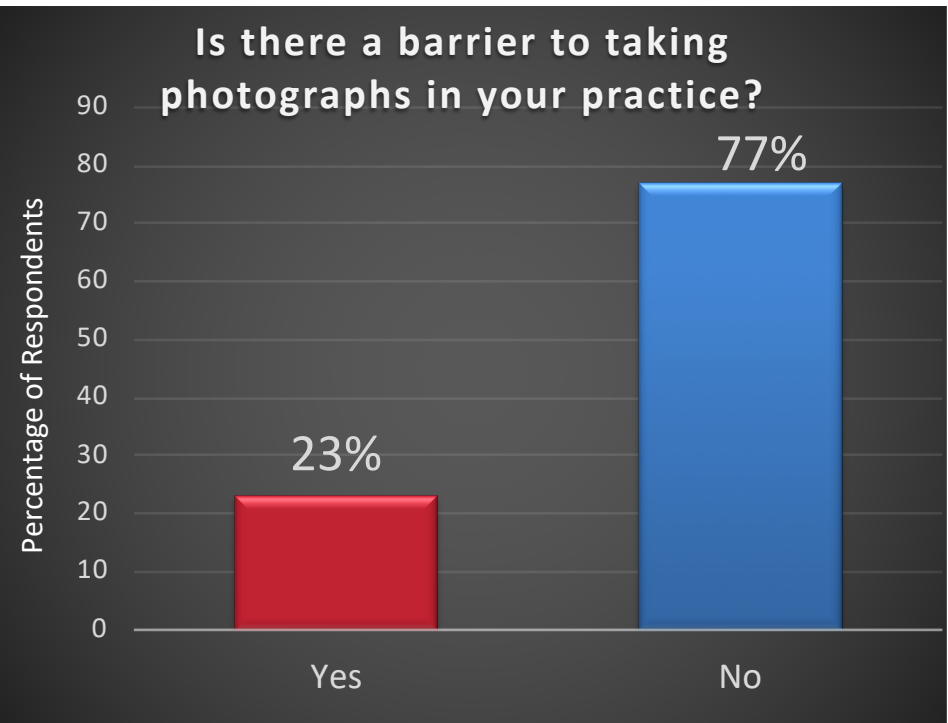


Figure 7

Barriers to Taking Clinical Photos

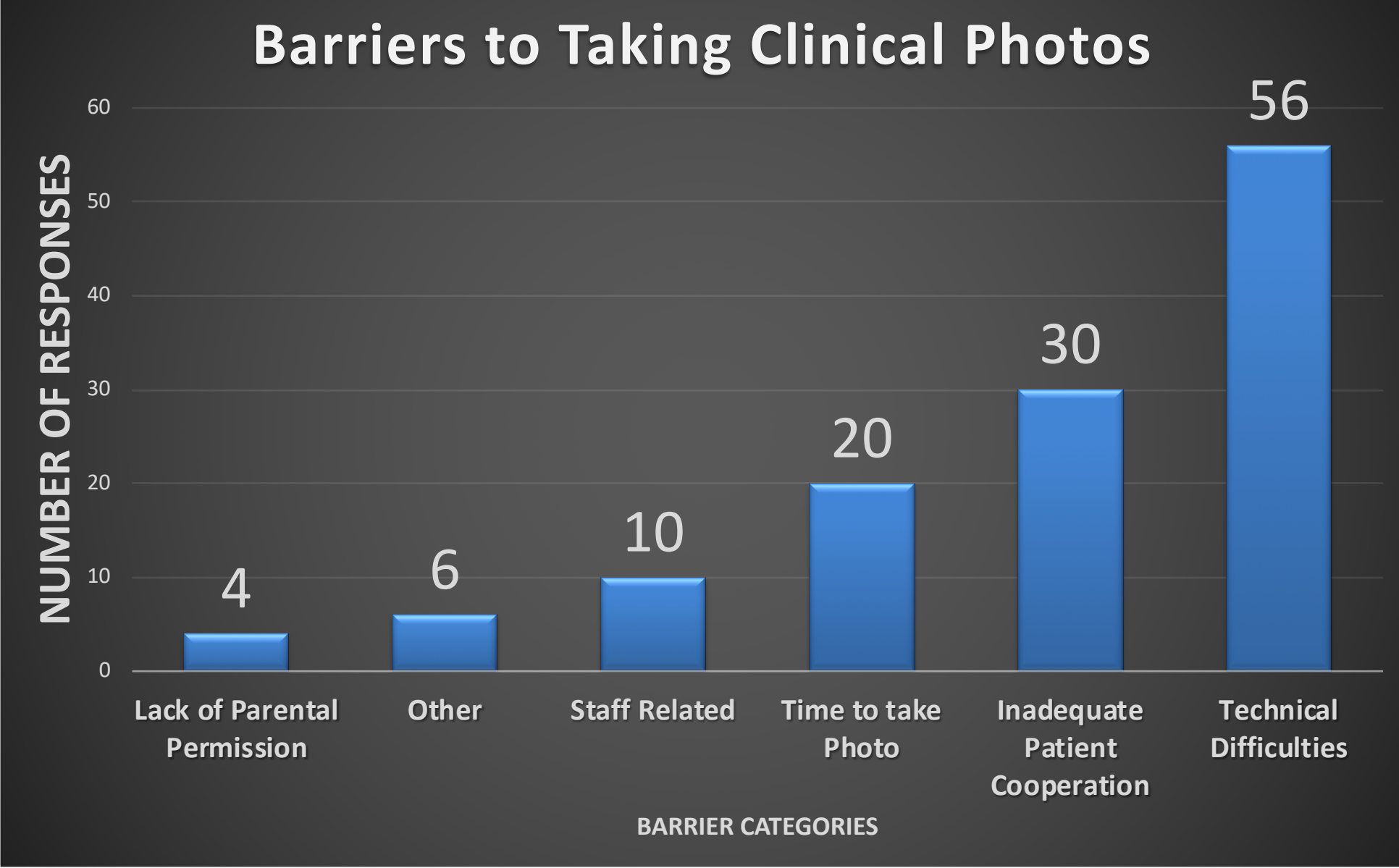


Figure 8: Barriers to Taking Clinical photos

DISCUSSION

This study was the first of its kind in assessing whether clinical photographs improve the diagnosis of dental trauma. Previous research has evaluated its use in Teledentistry and detecting TDIs within a population.

The Part 1 results were mixed. A majority of cases (4/6) did not show any significance and the two cases that did were in direct opposition to each other's findings. Therefore, it is inconclusive if clinical photos will improve one's ability to diagnose TDIs.

Although a majority of respondents were able to correctly select all teeth with TDIs in a single photograph, some misdiagnosed or over-diagnosed traumatized teeth. This shows a dentist can gain value from a photo, but it is not a replacement for a good clinical and radiographic exam.

The respondents were overall in agreement that there is value in taking clinical photographs of TDIs for clinical, documentation, legal and insurance purposes.

Approximately one in every four respondents cited a barrier to taking clinical photographs. Technical difficulties, patient's cooperation and time were most common barriers.

The study had many strengths including the parallel crossover design, evaluation of photos across all severity levels, value shown in complex TDIs, and gained insight into AAPD respondent's opinion on the use of clinical photographs in their practice.

CONCLUSIONS

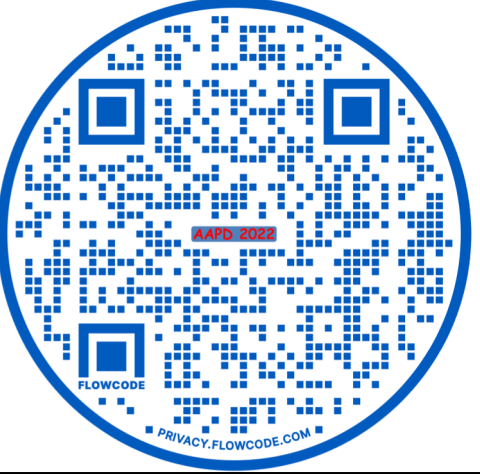
➤ AAPD respondents agree there is value in taking clinical photographs for TDIs.

➤ There are practice barriers in taking clinical photographs preventing its routine use at TDI encounters.

➤ Clinical Photographs are not a replacement for a clinical exam and radiographs, but add valuable information when managing TDIs.

➤ Future research in this area should focus on surveying other professional groups and more directly test effectiveness of clinical photographs in diagnosing TDIs.

REFERENCES



Scan for references