

# Do Children and Adolescents Prefer Pediatric Attire over White Attire during Dental Appointments? A Meta-analysis of Prevalence Data

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## ABSTRACT

**Purpose:** To evaluate the preferences of children and adolescents regarding the professional attire used by dentists (pediatric or white attire).

**Materials and methods:** Seven electronic databases were searched without restriction regarding language and publication date. The primary outcome was the preference of patients regarding pediatric or white attire; secondary outcomes were preference for a female or male dentist and the use of personal protective equipment or not. We ran a meta-analysis of prevalence data of preferences, calculating effect estimate (ES), 95% CI, subgrouped by anxiety status and sex of the patient. Z-test of interactions was used to compare prevalence between groups ( $p < 0.05$ ).

**Results:** Fourteen cross-sectional studies were included, consisting of 5,756 patients with ages ranging from 2 to 15 years. Anxious children preferred more pediatric attire (ES: 0.03; 95% CI: 0.02, 0.03) than non-anxious children (ES: 0.02; 95% CI: 0.01, 0.02) ( $p = 0.0085$ ). Female dentists were preferred (ES: 0.62; 95% CI: 0.52, 0.72) over male dentists (ES: 0.40; 95% CI: 0.30, 0.49) ( $p = 0.003$ ) in general and by the girls (ES: 0.41; 95% CI: 0.25, 0.56) but not by boys (ES: 0.20; 95% CI: 0.09, 0.30) ( $p = 0.036$ ).

**Conclusion:** There is no difference in the preferences of children and adolescents regarding a specific attire. Anxious children and adolescents preferred dentists using pediatric attire. In general, female dentists were preferred over male dentists and also were preference among girls.

**Keywords:** Adolescent, Child, Dentists, Patient preference.

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## INTRODUCTION

A friendly relationship and good communication between the child and dentist are important for the success of dental treatment, improving the quality of dental care.<sup>1</sup>

During the first visit to the dentist, even before verbal communication, children develop an impression of the dentist based on his/her appearance, movements, and gestures.<sup>1-3</sup> In this context, the appearance and the professional attire used are considered important as they influence the development of the professional-patient relationship<sup>4</sup> and can contribute to the establishment of empathy in the dental consultation.<sup>5,6</sup>

Professional attire has changed over time. The conventional white attire has been a symbol for the medical profession for more than a century since it represents purity and cleanliness.<sup>7</sup> More recently, professional clothing has been influenced by a less formal fashion look.<sup>8</sup> Examples of dressing such as "clown doctors" and friendly or pediatric attires have been increasingly used for the management of anxiety in pediatric dentistry.<sup>6,9</sup> However, the actual preference of the patients for these attires is still lacking in evidence to encourage its use to make patients feel more comfortable in the dental environment and improve the quality of the consultations.<sup>3,10,11</sup>

This study aimed to systematically review the scientific evidence regarding the preferences of children and adolescents on dentists' professional attire.

## MATERIALS AND METHODS

### Protocol

The present systematic review was undertaken in accordance with the guidelines of the Preferred Reporting Items for Systematic

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**Source of support:** Nil

**Conflict of interest:** None

Reviews and Meta-Analyses (PRISMA).<sup>12</sup> The protocol for this systematic review was registered on PROSPERO #CRD42018102177.

### Clinical Question

The PECO question was: What are the preferences of children and adolescents regarding dentists' professional attires? Patients: children and adolescents; Exposure: pediatric or colorful attires; Comparison: white attires; Outcome: preference.

### Search Strategy

In selecting terms for the search strategy, descriptors of the Medical Subject Headings (MeSH) related to the clinical question were used.

Seven electronic databases were searched until February 2017. There was no restriction of date of publication or language. Search strategies for each database are depicted in Table 1.

**Table 1:** The electronic database searched and respective search strategy

Database	Search strategy
Medline through PubMed, Scopus, Cochrane, Web of Science	(white coats OR white-coat OR lab coat OR attire OR medical coat OR medical coats OR dental coat OR dental coats OR professional appearance OR professional appearances OR clothing) AND (fear OR stress OR behavior OR behaviors OR attitude OR perceptions) AND (dental OR dental care OR dentistry OR oral care OR oral health)
Proquest	("white coats" OR "white-coat" OR "lab coat" OR attire OR "medical coat" OR "medical coats" OR "dental coat" OR "dental coats" OR "professional appearance" OR "professional appearances") AND (fear OR stress OR behavior OR behaviors OR attitude OR perceptions) AND (dental OR dentistry OR "oral care" OR "oral health")
Medline through Ovid	(white coats OR white-coat OR lab coat OR attire OR medical coat OR medical coats OR dental coat OR dental coats OR professional appearance OR professional appearances OR clothing[search tool]) AND (fear[search tool] OR stress OR behavior OR behaviors OR attitude[search tool] OR perceptions[search tool]) AND (dental OR dental care[search tool] OR dentistry[search tool] OR oral care OR oral health[search tool]).
Clinical trials	Attire White coat Lab coat

### Inclusion and Exclusion Criteria

The inclusion criteria were observational studies that evaluated professional attire that compared two or more types of attires; directed to dentistry or dentist; involved perception/preference of children and/or adolescents.

Exclusion criteria were: literature reviews, systematic reviews, case reports, editorials, studies that did not report professional attire; studies on hypertension in medicine or nursing; biosafety or protection; studies regarding medical and/or nursing professionals.

### Study Selection and Data Extraction

The study selection process was performed by two independent reviewers. First, the reviewers independently selected all studies retrieved from the electronic databases, based on the inclusion criteria applied to the titles and abstracts. For studies meeting the inclusion criteria or for those with insufficient data in the title and abstract, the full text was selected for a full reading. The independent reviewers were calibrated in accordance with the inclusion/exclusion criteria using a sample of 10% of the retrieved studies and the agreement between reviewers was found to be good ( $K = 0.846$ ). After the selection of titles and abstracts, independent reviewers selected studies based on the full texts.

Two independent reviewers extracted data and used a standardized form. We extracted data regarding the author's name; year of publication; geographical location; study design;

characteristics of participants, sample, exposure [professional attire, use of personal protective equipment (PPE), sex of the dentist], age, and sex of children and adolescents, anxiety status.

In case of missing or misunderstood data, the authors were personally contacted by e-mail.

### Risk of Bias

We used the Newcastle-Ottawa Quality Assessment Scale for case-control studies modified for use on the cross-sectional studies.<sup>13,14</sup> The risk of bias was evaluated regarding the included studies' selection (representativeness of the sample, sample size, non-respondents, and ascertainment of exposure), comparability (based on design and analysis), and outcome (assessment of the outcome and statistical test). Disagreements were resolved by a consensus. The final score could vary from 0 to a maximum of 8 points.

### Meta-analysis

We used STATA software (StataCorp. 2009. Stata Statistical Software: version 11, College Station, TX, USA) for meta-analysis. The primary outcome was the preference for the dentist attire: pediatric attire and white attire. Secondary outcomes were preference for the sex of the dentist and preference for the use of PPE. We extracted absolute numbers related to preferences and sample size. Data were extracted according to the reported papers and only those papers in which data could be extracted were included in the meta-analysis.

Statistical heterogeneity was calculated by  $I^2$  statistics.<sup>15</sup> The Mandel-Haenszel random effect model was used when there was a statistically significant heterogeneity ( $p < 0.05$ )<sup>15</sup> and for the subgroup analysis. We subgrouped for boys and girls regarding preferences of pediatric/white attire and female/male dentists. For those variables that had enough data to be abstracted, a subgroup analysis was run for anxiety (anxious/non-anxious children) and sex (girls/boys) pediatric. The overall effect estimate (ES) of prevalence was calculated for pediatric attire, white attire, male dentist and female dentist, PPE or no PPE. The respective 95% CI was calculated. The statistical difference between the ES of boys/girls, anxious/not anxious, pediatric/white attire, male/female dentist, PPE/no PPE was calculated using a Z-test and respective  $p$  values.<sup>16</sup> Statistical significance was considered at  $p \leq 0.05$ .

No funnel plot was performed for publication bias as there were not enough studies to be included in the meta-analysis.<sup>17</sup>

## RESULTS

### Summary of Article Selection and Data Extraction

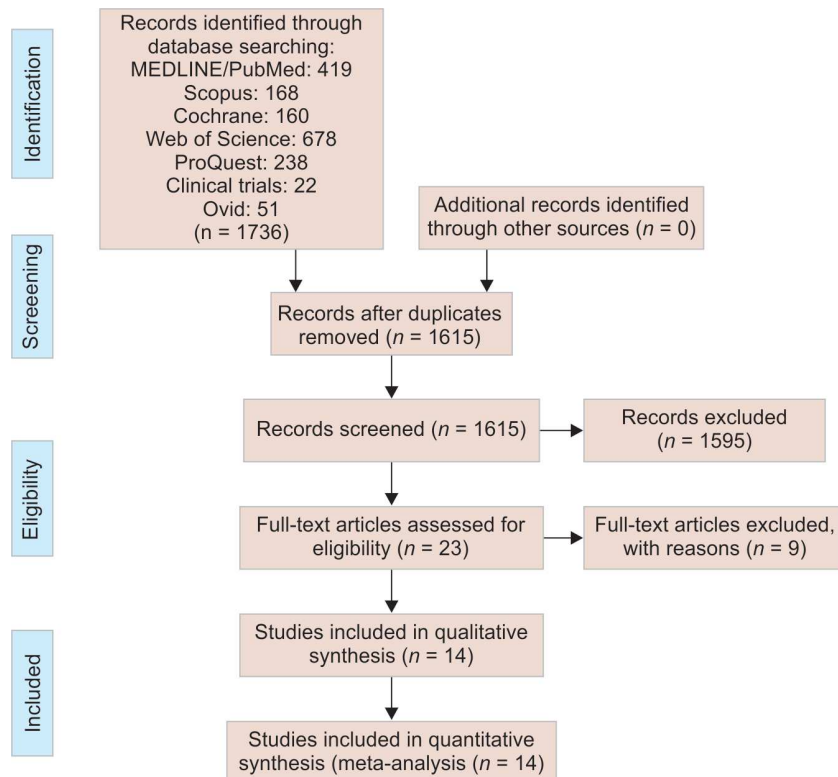
After removing duplicates ( $n = 121$ ), the electronic search yielded 1,615 potentially relevant references. Initially, 1,592 publications were excluded following the evaluation of the titles and abstracts. The full texts of the remaining 23 articles were read and 9 articles were excluded in this second phase. Thus, a total of 14 cross-sectional studies were included. Flowchart 1 illustrates the selection using the PRISMA flow diagram.<sup>12</sup>

### Description of the Included Studies

The included studies were comprised of 5,756 children and adolescents, with ages ranging from 2 to 15 years. Studies were from India ( $n = 6$ ), Turkey ( $n = 2$ ), Saudi Arabia ( $n = 2$ ), the United States ( $n = 2$ ), Singapore ( $n = 1$ ), and England ( $n = 1$ ).

All 14 included studies assessed the preferences of children and adolescents for the type of attire used by the dentist. In all of them, each child or adolescent was asked to choose pictures that indicated

Flowchart 1: PRISMA flow diagram summarizing article selection



their preference regarding the type of attire used by the dentist. Four studies had questionnaires that were answered by the children and adolescents' parents.<sup>4,11,18,19</sup> In addition to the attire, 9 studies evaluated the preference of children and adolescents in relation to the use of PPE by dentists<sup>1,3,4,10,11,18,20–22</sup> and 10 evaluated the sex of the dentist.<sup>1,3,4,10,11,18–20,22,23</sup> Six studies evaluated the opinions of anxious and non-anxious children and adolescents.<sup>1,6,19–21,24</sup> The other characteristics of the studies are presented in Table 2.

### Risk of Bias

The scores of Newcastle-Ottawa modified scale varied from 8,<sup>19</sup> 7,<sup>20,24</sup> 6,<sup>6,10</sup> 5,<sup>3,4,21</sup> 4,<sup>1,11,18,22,25</sup> and 3<sup>23</sup> (Table 3).

### Meta-analysis

Fourteen studies were included in the meta-analysis.<sup>1,3,4,6,10,11,18–20,22–25</sup> Table 4 shows the prevalence (ESs) and 95% CI of preferences among children and adolescents. Supplementary Figs 1 to 12 show the corresponding forest plots. In general, the overall prevalence of preference for pediatric attire was 0.33 (95% CI: 0.20, 0.47) and 0.41 (95% CI: 0.20, 0.61) for white attire ( $p = 0.325$ ). We subgrouped by anxiety and sex without a difference in the preference of use of pediatric or white attire. However, subgroup analysis for anxiety showed that anxious children/adolescents preferred pediatric attire (ES: 0.03; 95% CI: 0.02, 0.03) compared to non-anxious children/adolescents (ES: 0.02; 95% CI: 0.01, 0.02) ( $p = 0.0085$ ).

In general, a female dentist (ES: 0.62; 95% CI: 0.52, 0.72) was preferred over a male dentist (ES: 0.40; 95% CI: 0.30, 0.49) ( $p = 0.003$ ), and girls preferred a female dentist (ES: 0.41; 95% CI: 0.25, 0.56) compared to boys (ES: 0.20; 95% CI: 0.09, 0.30) ( $p = 0.036$ ). Preferences for a male dentist by sex and preferences for the use of PPE did not differ.

## DISCUSSION

There is a changing trend concerning the attire used for pediatric care in dental care environments. However, no systematic review or meta-analysis was found addressing whether or not there is scientific evidence supporting this change.

The overall results showed that there is no difference between the preference for white or pediatric attire among children and adolescents, even when they were subgrouped by sex. However, the preference for pediatric attire was higher among anxious children and adolescents than among the non-anxious ones. Children and adolescents had a higher preference for female dentists than for male dentists. Girls preferred female dentists more than boys. Also, the use of PPE was not a concern among children and adolescents.

Recent studies have shown the preference of children and adolescents for the use of white attires by dentists,<sup>3,4,10,11,18,24</sup> while others encourage the use of "child friendly attire".<sup>6,20</sup> This may confound the dentist while choosing his or her professional attire. The preference for the professional wearing white attire<sup>1,3,4,6,10,18,24</sup> suggests an image of professionalism that would increase confidence.<sup>1,18,26</sup> Contrary to the popular belief that children are afraid of professionals wearing white attires, more formal dressing would portray a more competent and committed professional.<sup>27</sup> The white attire also seems to be seen as a symbol of "healing"<sup>10</sup>. Despite recent changes in Western culture in favor of more casual dressing styles, there seems to still be a preference for the dentist's formal attire.<sup>3,11</sup> Also, children may have become used to the conventional attire that health professionals wear by visiting the pediatrician and family doctors from an early age depending on the socioeconomic status of the country they reside in. They may have also become acquainted with health professionals seen in the

**Table 2:** Main characteristics of included studies

Author, year (country)	Participants' characteristics	Initial (final) sample	Outcomes	Independent variables	Results
Cohen, 1973 <sup>25</sup> (EUA)	2–15-year olds	(300)	Dentist's attire	Age and sex	White attire, shirt and tie: 111 (37.00%) Clinic gown: 97 (32.33%) Shirt and tie: 92 (30.67%) $p > 0.05$
Davis et al., 1993 <sup>21</sup> (EUA)	2–8-year olds	30	Use of PPE	Age and anxiety level (Frankl Scale)	Dentist with PPE: 18 (60%) Dentist without PPE: 8 (26%) No preference: 4 (13%) $p = 0.561$
Mistry and Tahmassebi, 2009 <sup>18</sup> (England)	4–16-year olds and their parents	106 (100) parents and 100 (100) children	Dentist's attire, PPE, and sex	Parent × child	Female white attire and mask: 15.5 (15.5%) Male white attire and mask: 11 (11.0%) Female green T-shirt: 8.5 (8.5%) Female pediatric attire: 4 (4%) Male green T-shirt: 2.5 (2.5%) Male pediatric attire: 1.5 (1.5%)
Kuscu et al., 2009 <sup>6</sup> (Turkey)	9–14-year olds	(827)	Dentist's attire	Age, sex, and anxiety level (CFSS-DS)	White uniform: 377 (45.6%) Child friendly attire: 252 (30.5%) Informal attire: 114 (13.8%) Semi-formal attire: 84 (10.2%) $p$ value presented only when comparing age groups and anxiety levels
Al Sarheed, 2011 <sup>10</sup> (Saudi Arabia)	9–12-year olds	(583)	Dentist's attire, PPE, sex, clinic's decoration	Sex, age, presence of a physician in the family, previous dental care experience	Colored attire: 57 (9.8%) White attire: 526 (90.2%) Male dentist: 312 (53.5%) Female dentist: 271 (46.5%) PPE Mask and protective glasses: 235 (40.4%) No protection: 181 (31.0%) Mask: 98 (16.8%) Protective glasses: 69 (11.8%) $p$ value presented only when comparing preferences according to previous dental care experience or presence of a physician in the family

Contd...

Contd...		Participants'		Independent variables		Results	
Author, year (country)	Initial (final) sample	Outcomes	Outcomes	Independent variables	Results	Results	Results
Müneveroğlu et al., 2014 <sup>22</sup> (Turkey)	6–12-year olds (200)	Dentist's attire, sex, PPE, clinic's decoration	Dentist's attire, sex, PPE, clinic's decoration	Previous dental care experience, presence of a physician in the family, DMFT, and DMFT scores	Colored attire: 153 (76.5%) White attire: 47 (23.5%) Female dentist: 168 (84%) Male dentist: 32 (16%) $p < 0.05$ PPE assessed separately: Mask: 141 (70.5%) No protection: 40 (20%) Mask and protective glasses: 17 (8.5%) Protective glasses: 2 (1%) The authors state that a significant difference was found only for sex	Colored attire: 153 (76.5%) White attire: 47 (23.5%) Female dentist: 168 (84%) Male dentist: 32 (16%) $p < 0.05$ PPE assessed separately: Mask: 141 (70.5%) No protection: 40 (20%) Mask and protective glasses: 17 (8.5%) Protective glasses: 2 (1%) The authors state that a significant difference was found only for sex	
Panda et al., 2014 <sup>3</sup> (India)	6–14-year olds (619)	Use of name badge, PPE, attire, sex, male dentist to be clean-shaved, use of perfume, jewelry, and wristwatches	Use of name badge, PPE, attire, sex, male dentist to be clean-shaved, use of perfume, jewelry, and wristwatches	Age and sex	Considered important the dentist's appearance: 497 (80.3%) Dentists with name badges: 482 (77.9%) Dentist with the watch: 419 (67.7%) Dentists with any kind of jewelry: 412 (66.6%) Dentists with perfume: 352 (57%) Dentists without protective glasses: 321 (52%) Dentists with head cap: 266 (43%) No $p$ value	Considered important the dentist's appearance: 497 (80.3%) Dentists with name badges: 482 (77.9%) Dentist with the watch: 419 (67.7%) Dentists with any kind of jewelry: 412 (66.6%) Dentists with perfume: 352 (57%) Dentists without protective glasses: 321 (52%) Dentists with head cap: 266 (43%) No $p$ value	
Tong et al., 2014 <sup>19</sup> (Singapore)	Pairs of 5–7-year-old children and their parents (407)	Dentist's attire, age, ethnicity, and sex	Dentist's attire, age, ethnicity, and sex	Children and parent's preferences, children's anxiety (CFSS-DS), and DMFT score	Disposable attire: 133 (33.1%)	Disposable attire: 133 (33.1%)	
					Pediatric attire: 83 (20.6%) Scrubs: 58 (14.4%) Informal attire: 49 (12.2%) White attire: 40 (10%) Formal attire 39 (9.7%) $p > 0.05$ Male dentist: 210 (52.2%) Female dentist: 197 (47.8%)	Pediatric attire: 83 (20.6%) Scrubs: 58 (14.4%) Informal attire: 49 (12.2%) White attire: 40 (10%) Formal attire 39 (9.7%) $p > 0.05$ Male dentist: 210 (52.2%) Female dentist: 197 (47.8%)	

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Contd...		Participant's characteristics				Independent variables		Results	
Author, year (country)	Initial (final) sample	Outcomes	Outcomes	Initial (final) sample	Outcomes	Outcomes	Results	Results	
Ellore et al., 2015 <sup>11</sup> (India)	9-13-year olds and their parents (150)	Dentist's attire, PPE, and sex	Dentist's attire, PPE, and sex	Children's sex, and child × parent	White attire: 104 (70%)	Pediatric attire: 18 (12%) Formal attire: 14 (9%) Informal attire: 11 (7%) Professional attire: 3 (2%) Female dentist: 69 (46%) Male dentist: 69 (46%) Dentist with PPE: 107 (71%) Dentist without PPE: 43 (29%)	White attire: 104 (70%)	Pediatric attire: 18 (12%) Formal attire: 14 (9%) Informal attire: 11 (7%) Professional attire: 3 (2%) Female dentist: 69 (46%) Male dentist: 69 (46%) Dentist with PPE: 107 (71%) Dentist without PPE: 43 (29%)	
Nirmala et al., 2015 <sup>24</sup> (India)	9-14-year olds 2,500 (1,008)	Dentist's attire	Dentist's attire	Child's anxiety (CFSS-DS)	Woman in white attire and glasses: 153 (22%) Woman in white attire: 149 (33%) Man in white attire and glasses: 104 (18%) Woman in white attire and mask: 97 (20%) Man in formal attire: 92 (17%) Man in white attire: 71 (12%) Man in white attire and visor: 38 (7%) Woman in casual attire: 38 (7%) Man in white attire and mask: 34 (6%) Man in casual attire: 31 (5%) Woman in pediatric attire: 11 (2%) Woman in white attire and visor: 11 (2%) Man in pediatric attire: 6 (1%)	Woman in white attire and glasses: 153 (22%) Woman in white attire: 149 (33%) Man in white attire and glasses: 104 (18%) Woman in white attire and mask: 97 (20%) Man in formal attire: 92 (17%) Man in white attire: 71 (12%) Man in white attire and visor: 38 (7%) Woman in casual attire: 38 (7%) Man in white attire and mask: 34 (6%) Man in casual attire: 31 (5%) Woman in pediatric attire: 11 (2%) Woman in white attire and visor: 11 (2%) Man in pediatric attire: 6 (1%)	Woman in white attire and glasses: 153 (22%) Woman in white attire: 149 (33%) Man in white attire and glasses: 104 (18%) Woman in white attire and mask: 97 (20%) Man in formal attire: 92 (17%) Man in white attire: 71 (12%) Man in white attire and visor: 38 (7%) Woman in casual attire: 38 (7%) Man in white attire and mask: 34 (6%) Man in casual attire: 31 (5%) Woman in pediatric attire: 11 (2%) Woman in white attire and visor: 11 (2%) Man in pediatric attire: 6 (1%)	Woman in white attire and glasses: 153 (22%) Woman in white attire: 149 (33%) Man in white attire and glasses: 104 (18%) Woman in white attire and mask: 97 (20%) Man in formal attire: 92 (17%) Man in white attire: 71 (12%) Man in white attire and visor: 38 (7%) Woman in casual attire: 38 (7%) Man in white attire and mask: 34 (6%) Man in casual attire: 31 (5%) Woman in pediatric attire: 11 (2%) Woman in white attire and visor: 11 (2%) Man in pediatric attire: 6 (1%)	
Asokan et al., 2016 <sup>20</sup> (India)	9-12-year olds (1,155)	Dentist's attire, PPE, and sex	Dentist's attire, PPE, and sex	Child's anxiety (CFSS-DS) and sex	Colored attire: 630 (54.55%) White attire: 525 (45.45%) $p < 0.05$ Dentist with PPE: 752 (63.38%) Dentist without PPE: 423 (36.62%) $p < 0.05$ Female dentist: 709 (61.39%) Male dentist: 446 (38.612%)	Colored attire: 630 (54.55%) White attire: 525 (45.45%) $p < 0.05$ Dentist with PPE: 752 (63.38%) Dentist without PPE: 423 (36.62%) $p < 0.05$ Female dentist: 709 (61.39%) Male dentist: 446 (38.612%)	Colored attire: 630 (54.55%) White attire: 525 (45.45%) $p = 0.089$ (comparison between white attire and pediatric attire) Colored attire: 630 (54.55%) White attire: 525 (45.45%) $p < 0.05$ Dentist with PPE: 752 (63.38%) Dentist without PPE: 423 (36.62%) $p < 0.05$ Female dentist: 709 (61.39%) Male dentist: 446 (38.612%)	Colored attire: 630 (54.55%) White attire: 525 (45.45%) $p = 0.089$ (comparison between white attire and pediatric attire) Colored attire: 630 (54.55%) White attire: 525 (45.45%) $p < 0.05$ Dentist with PPE: 752 (63.38%) Dentist without PPE: 423 (36.62%) $p < 0.05$ Female dentist: 709 (61.39%) Male dentist: 446 (38.612%)	

Contd...

Contd...	Participants' characteristics		Initial (final) sample	Outcomes	Independent variables	Results
Author, year (country)						
Ravikumar et al., 2016 <sup>1</sup> (India)	6–11-year olds	(534)	Dentist's attire, PPE, and sex	Child's age, sex, anxiety level (MC-DAS), and environment (dental clinic x school)	<p><math>p &lt; 0.05</math></p> <p>White attire: 195 (36.52%)</p> <p>Surgical scrubs: 195 (36.52%)</p> <p>Regular outfit: 144 (26.96%)</p> <p>Female dentist: 289 (51.1%)</p> <p>Male dentist: 245 (45.8%)</p> <p>White attire: 90 (60%)</p>	
Almutairi and Al-Essa, 2016 <sup>4</sup> (Saudi Arabia)	9–13-year olds and their parents	150 children and 150 parents	Dentist's attire, PPE, and sex	Child's sex, and age	<p>Colored attire: 36 (24%)</p> <p>Scrubs: 15 (10%)</p> <p>Formal Saudi attire: 5 (3.31%)</p> <p>Casual attire: 4 (2.7%)</p> <p><math>p = 0.169</math></p> <p>White attire: 90 (60%)</p> <p>Non-white attire: 60 (40%)</p> <p><math>p = 0.547</math></p> <p>Female dentist: 87.1%</p> <p>Male dentist: 11.9%</p> <p><math>p = 0.169</math></p>	
Subramanian and Rajasekaran, 2016 <sup>23</sup> (India)	9–12-year olds	(100)	Dentist's attire and sex and clinic decoration	Previous dental care experience, presence of a physician in the family, sex	<p>Colored attire: 72 (72%)</p> <p>White attire: 28 (28%)</p> <p>Male dentist: 58 (58%)</p> <p>Female dentist: 42 (42%) No <math>p</math> value</p>	

CFSS-DS, Children's Fear Survey Schedule—Dental Subscale; MCDAS, Modified Child Dental Anxiety Scale

**Table 3:** Risk of bias of studies using the modified Newcastle-Ottawa scale<sup>13,14</sup>

Study	Selection			Comparability		Outcome		Total (8)
	Representativeness of the sample	Sample size	Non-respondents	Ascertainment of exposure	Based on design and analysis	Assessment of outcome	Statistical test	
Cohen, 1973 <sup>25</sup>	–	–	*	*	*	*	–	(4)
Davis et al., 1993 <sup>21</sup>	–	–	*	*	*	*	*	(5)
Mistry and Tah-massebi, 2009 <sup>18</sup>	–	–	*	*	*	*	–	(4)
Kuscu et al., 2009 <sup>6</sup>	*	*	*	*	*	*	–	(6)
Al Sarheed, 2011 <sup>10</sup>	*	*	*	*	*	*	–	(6)
Münevveroğlu et al., 2014 <sup>22</sup>	–	–	*	*	*	*	–	(4)
Panda et al., 2014 <sup>3</sup>	–	–	*	*	**	*	–	(5)
Tong et al., 2014 <sup>19</sup>	*	*	*	*	**	*	*	(8)
Ellore et al., 2015 <sup>11</sup>	–	–	*	*	*	*	–	(4)
Nirmala et al., 2015 <sup>24</sup>	–	*	*	*	**	*	*	(7)
Asokan et al., 2016 <sup>20</sup>	–	*	*	*	**	*	*	(7)
Ravikumar et al., 2016 <sup>1</sup>	–	–	*	*	*	*	–	(4)
Almutairi and Al-Essa, 2016 <sup>4</sup>	–	–	*	*	*	*	*	(5)
Subramanian and Rajasekaran, 2016 <sup>23</sup>	–	–	*	–	*	*	–	(3)

**Table 4:** Results of a meta-analysis of prevalence data reporting effect estimates (ES) and 95% CI of according to preferences of children/adolescents

Preference for	Number of included studies	ES (95% CI)	z-test	p value
<b>Primary outcome</b>				
Pediatric attire	10	0.33 (0.20, 0.47)	0.6388	0.325
White attire	13	0.41 (0.20, 0.61)		
Pediatric attire among girls*	4	0.15 (–0.05, 0.35)	0.642	0.325
Pediatric attire among boys*	4	0.09 (–0.01, 0.20)		
Pediatric among anxious children/adolescents**	2	0.03 (0.02, 0.03)	2.771	0.0085
Pediatric among non-anxious children/adolescents**	2	0.02 (0.01, 0.02)		
White attire among girls*	5	0.25 (0.14, 0.37)	1.076	0.224
White attire among boys*	5	0.18 (0.13, 0.24)		
White attire among anxious children**	3	0.17 (0.11, 0.22)	0.672	0.318
White attire among non-anxious children**	3	0.22 (0.09, 0.36)		
<b>Secondary outcomes</b>				
Female dentist	8	0.62 (0.52, 0.72)	3.126	0.003
Male dentist	8	0.40 (0.30, 0.49)		
Female dentist among girls*	4	0.41 (0.25, 0.56)	2.198	0.036
Female among boys*	3	0.20 (0.09, 0.30)		
Male dentist among girls*	3	0.10 (0.01, 0.19)	1.879	0.068
Male dentist among boys*	4	0.24 (0.13, 0.36)		
Use of PPE	4	0.45 (0.17, 0.72)	1.248	0.182
No use of PPE	4	0.27 (0.20, 0.33)		

\*Subgroup analysis by sex

\*\*Subgroup analysis by anxiety groups

media (television dramas and documentaries, newspapers, etc.) or may have been hospitalized.<sup>6,24</sup>

Our results show that pediatric attire seems to be a good option for anxious children and adolescents in the dental office. The results

of the study by Asokan et al.,<sup>20</sup> who analyzed the preference of anxious and non-anxious children about the color of the attire, revealed that anxious children prefer colored, pediatric attires. Also, the use of child-friendly attire in the treatment of anxious children



can help with promoting good communication and management.<sup>6</sup> On the other hand, Ellore et al.<sup>11</sup> found a higher preference of children for the use of white attire; they also suggested the use of friendly attires in the management of anxious children. The use of colored attires can help reduce anxiety in dental care resulting in better communication<sup>20</sup> as children seem to connect colors with positive emotions.<sup>28</sup>

Ravikumar et al.<sup>1</sup> observed that the age of the child could influence the child's preference. Children under the age of 8 years preferred the dentist to wear casual clothes and those over 8 showed a preference for white attires or surgical scrubs, suggesting that the dentist should consider the age of the patients when dressing to improve the relationship with them.

In general, the female professional had a higher preference when compared to the male professional. These results can be attributed to the fact that younger children perceive their mothers as gentle and welcoming, extrapolating this feeling to the dentist's figure.<sup>4</sup> There is a perception that female dentists would be more careful, humanized, successful in making the patient feel relaxed, they give more time with explanations, show more empathy, and all that would correlate with patient satisfaction and adherence to treatment.<sup>29</sup> In the studies of Almutairi and Al-Essa<sup>4</sup> and Münevveroğlu et al.,<sup>22</sup> the vast majority of children preferred to be treated by female dentists, and the findings of Asokan et al.<sup>20</sup> pointed out that anxious children tended to prefer female dentists. In addition, girls tended to have a consultation with a female dentist more than boys. According to the child's growth, there is a tendency to prefer the same-sex professional,<sup>1,4,10,11,18–20,23</sup> which could happen by cultural influence.<sup>19,20</sup> Moreover, among the four included studies in a meta-analysis, three were for India<sup>1,11,20</sup> and one from Turkey,<sup>22</sup> religious and cultural influences might explain the findings, as in these cultures, girls are not supposed to be alone with men.

Surprisingly, the preference for the use of PPE or not did not differ. This can be attributed to the fact that children are aware of the use of PPE in dental care and perceive that its use is necessary,<sup>20</sup> representing a common practice in modern dentistry.<sup>18</sup> Al Sarheed<sup>10</sup> suggested that dentists should explain to their patients the purpose of PPE, thus reducing fear; a suggestion shared by Panda et al.<sup>3</sup> who in their study verified that the majority of the children did not prefer the use of goggles or cap by the dentist. Two studies found that most of the children and their parents preferred the use of PPE by the dentist (cap, mask, and goggles) probably demonstrating their awareness of the potential transmission of infectious diseases and how such equipment would represent safety.<sup>4,11</sup> For Davis et al.,<sup>21</sup> PPE alone does not interfere with the child's first impression of the dentist.

As the dentist's attire does not play such a significant role in the child's preference, other aspects such as the dentist's communication skills, behavior, and attitude can have a considerably greater impact on the patient-professional relationship.<sup>24</sup> Still in this context, Al Sarheed<sup>10</sup> and Panda et al.<sup>3</sup> stated that although children may indicate certain preferences regarding the appearance of their dentists, these preferences may mean little when compared to personal attributes of the professional such as kindness, patience, and competence. The preference for colored attire may be much more of the parents<sup>11</sup> than of the dentists themselves.<sup>1,11</sup>

The risk of bias showed important variability in the studies, mostly regarding the selection of the sample and the statistical

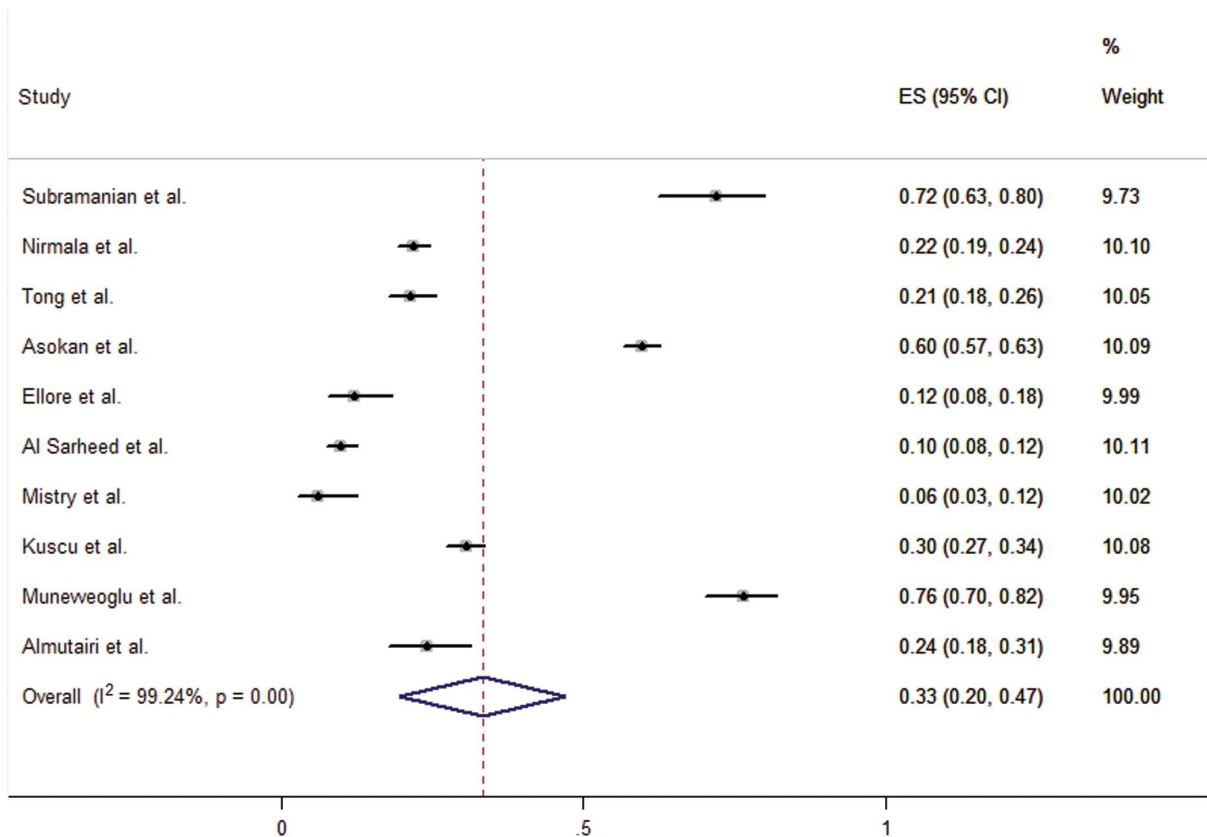
analyses. The main bias of the studies was regarding the representativeness of the sample which was statically calculated in only three studies.<sup>6,10,19</sup> Five studies<sup>4,19–21,24</sup> presented the statistical analysis of all comparisons. Also, not all studies adjusted for all confounding variables. The lack of adjustment of the confounders may explain the high heterogeneity found in the meta-analysis. Some statistical heterogeneity in observational data is expected due to confounding, this may be due to age differences, how the preference data was collected, cultural and religious status. In the present systematic review, 11 studies had Asian origin, 6 from India, 2 from Turkey, 2 from Saudi Arabia, and 1 from Singapore. This may be an indication that these countries are giving greater importance to the professional attire used in the dental care of children. However, it can also be interpreted as a limitation of this systematic review, since preferences and behaviors are related to cultural aspects, both in relation to the preference for the attire used by the professionals and in relation to the preference for the sex of the dentists. Preference for a female dentist by girls can have limited external validity. Thus, the smaller amount of research conducted in other regions of the world, two North American and one European might influence the outcome of the meta-analyses. Also, the results may be extrapolated with caution to countries from those regions. Research should be done with children from other regions to assess whether culture influences this aspect of pediatric dental care.

On the other hand, it is worth noting that the similarity of the methodologies used in the fourteen included studies enabled the inclusion of all the studies in the meta-analyses. To confirm the scientific evidence, we suggest more prospective studies to follow-up if preferences keep being the same as children grown up.

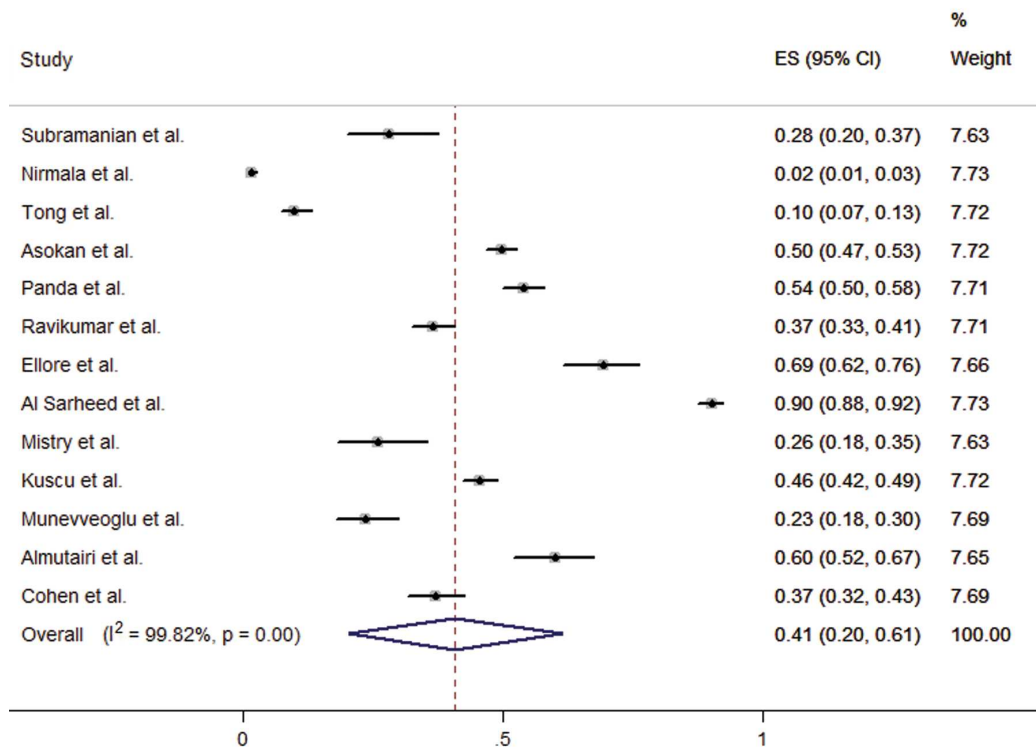
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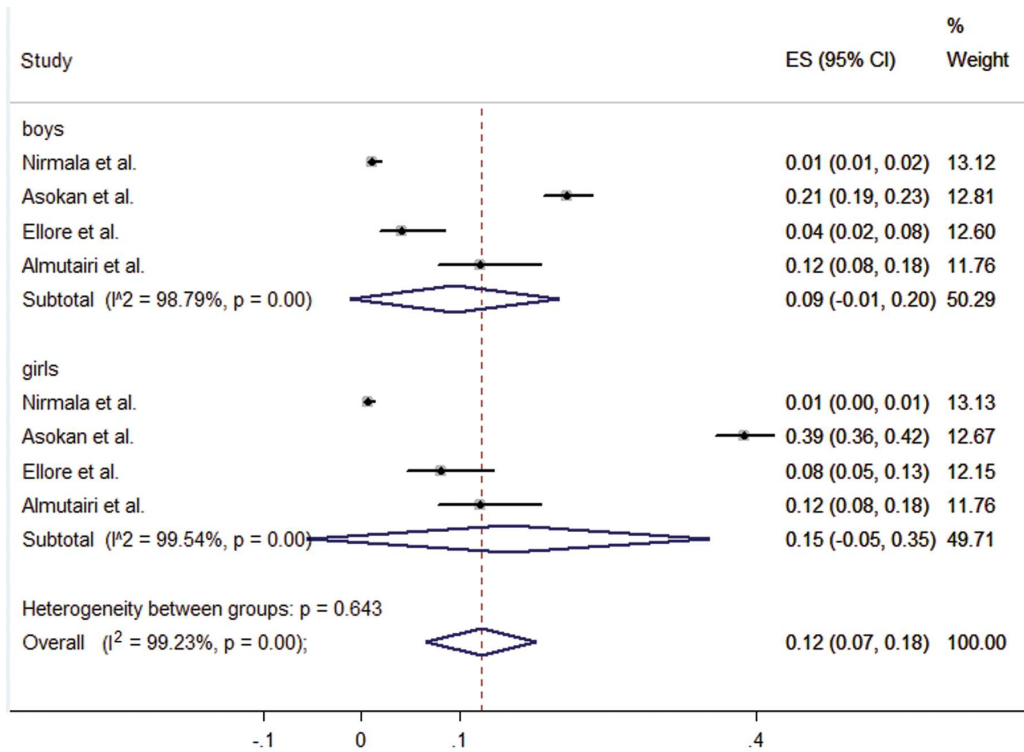
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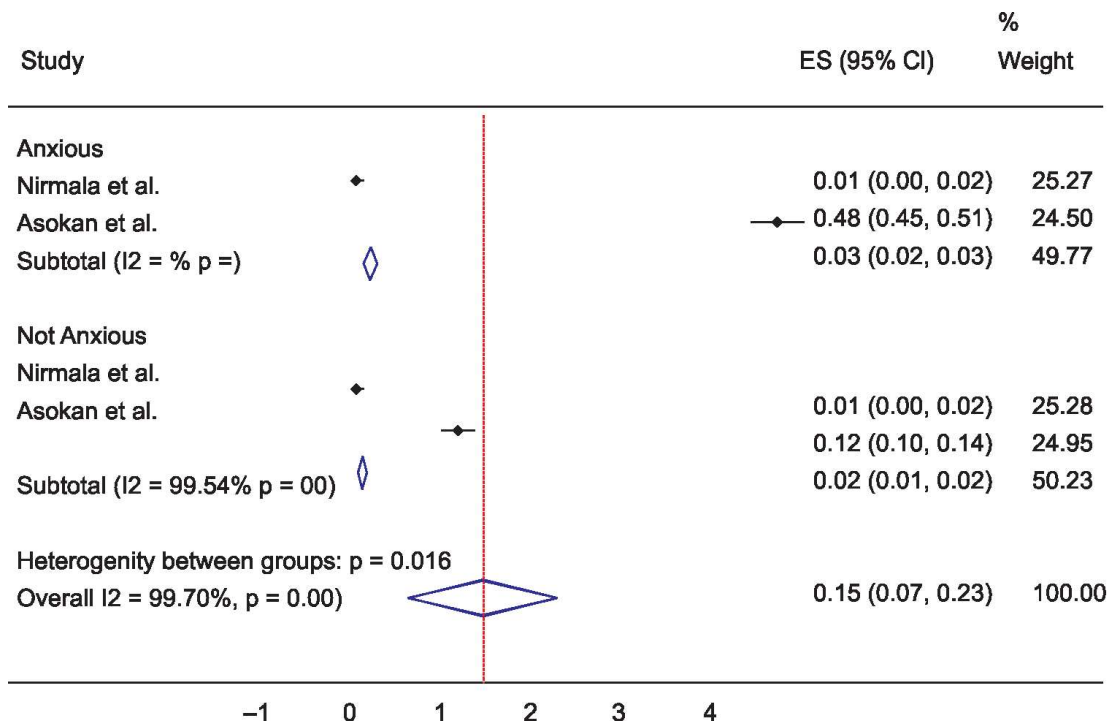
Supplementary Fig. 1: The proportion of the preference for pediatric attire and 95% CI



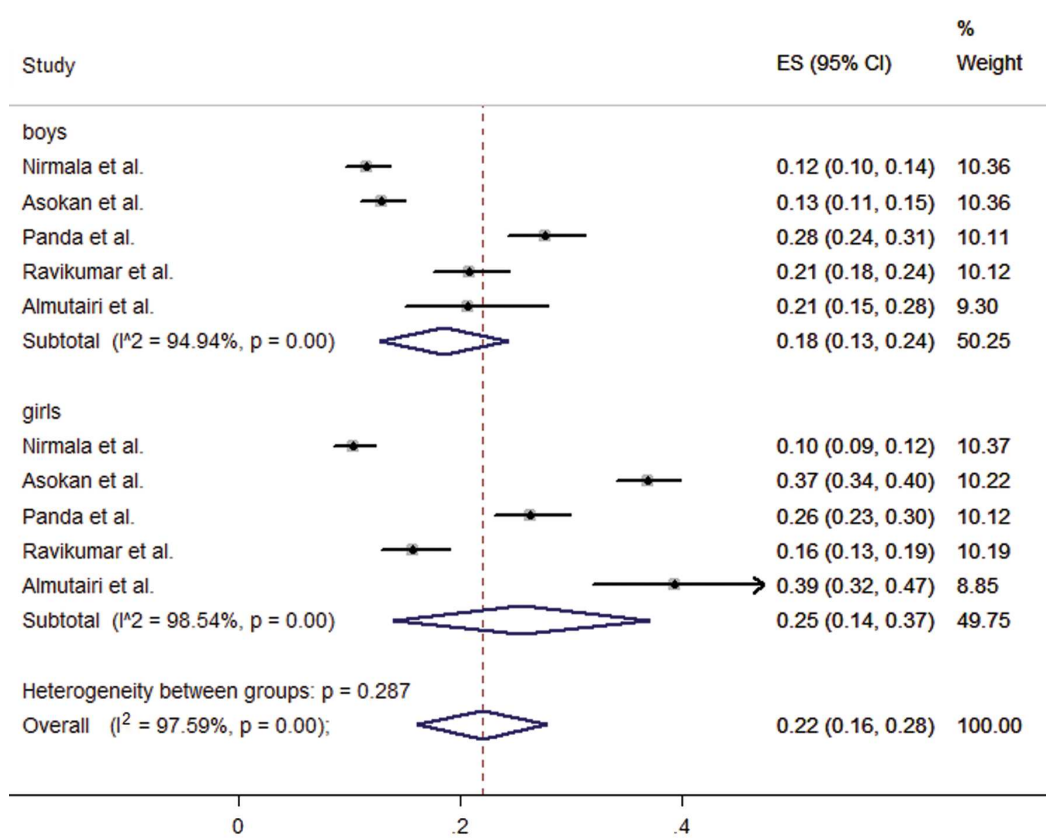
Supplementary Fig. 2: The proportion of the preference for white attire and 95% CI



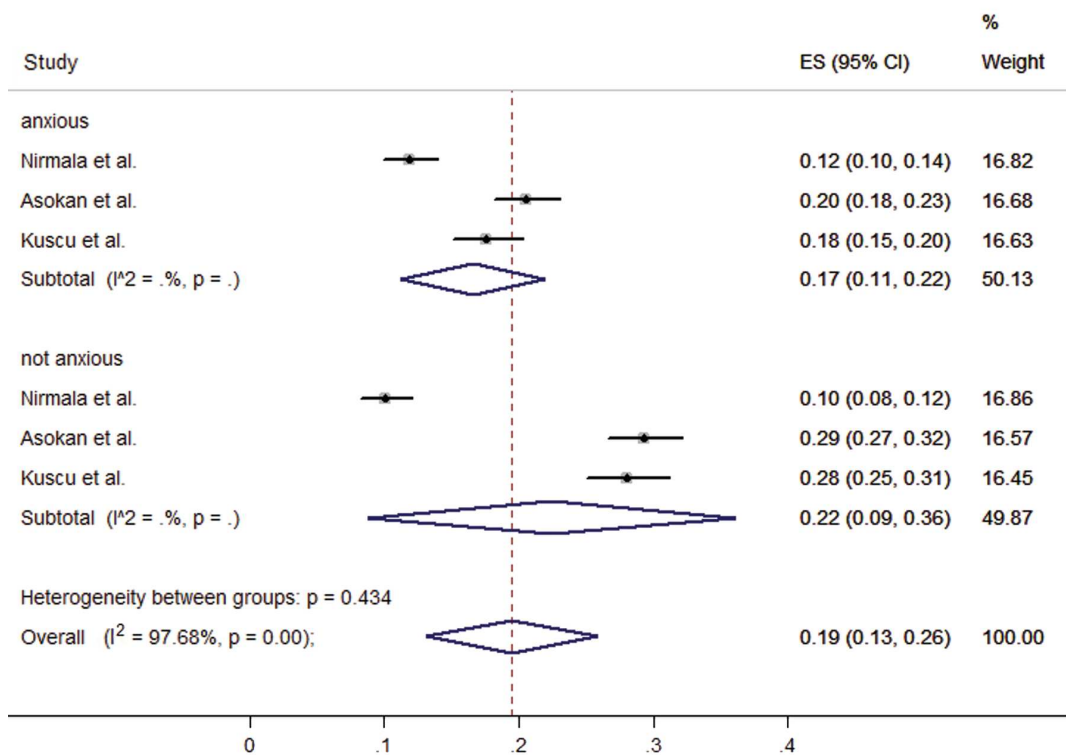
Supplementary Fig. 3: Subgroup analysis of the proportion of the preference of pediatric attire according to the sex of the child/adolescent



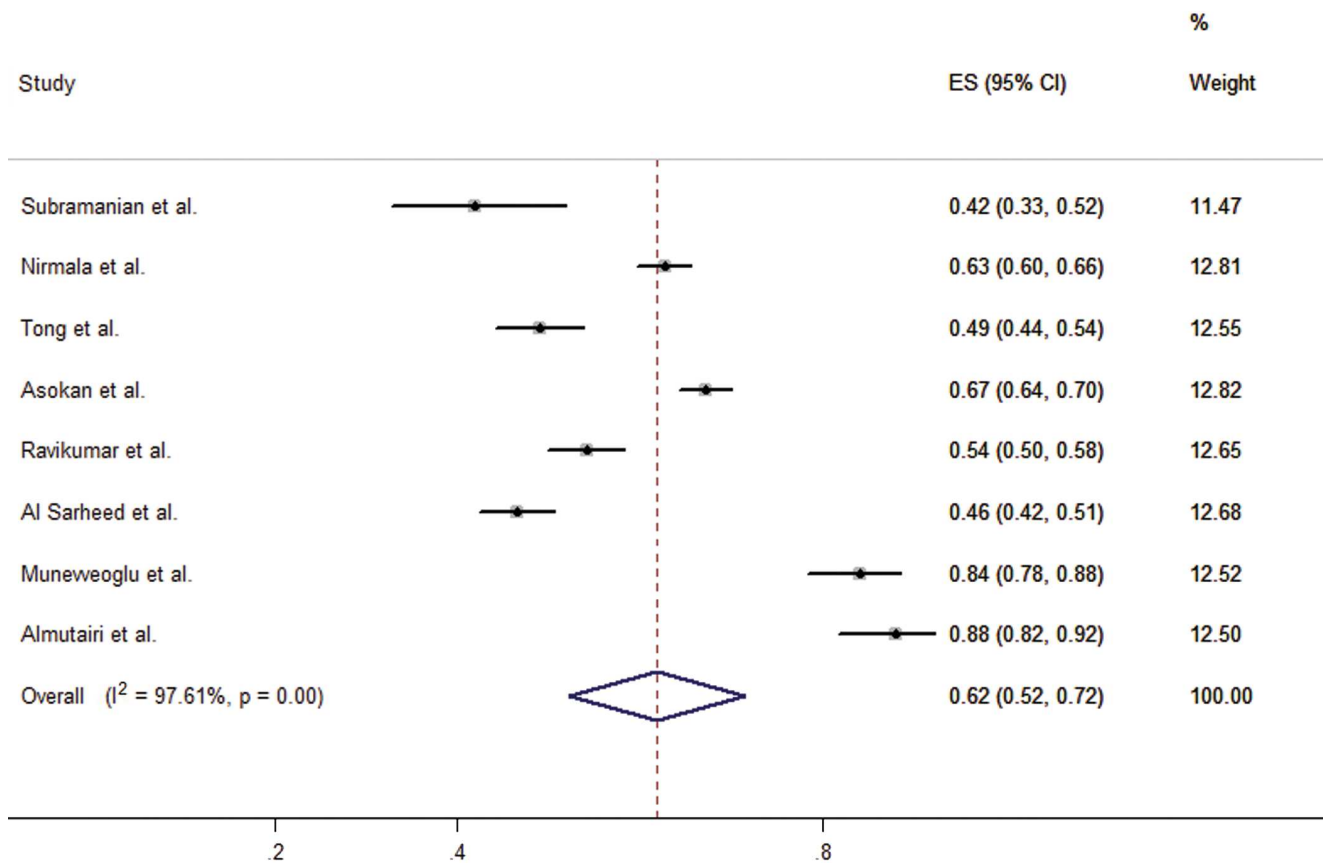
Supplementary Fig. 4: Subgroup analysis of the proportion of the preference of pediatric attire according to anxiety or not



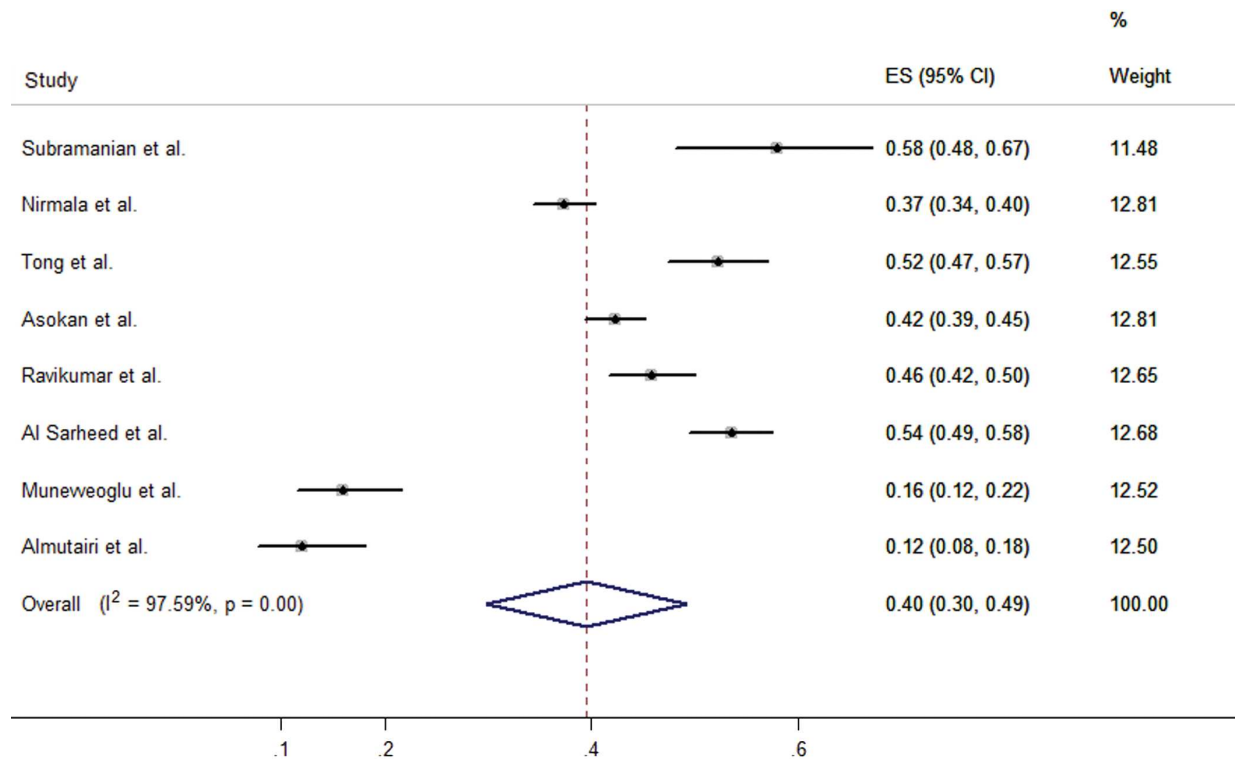
Supplementary Fig. 5: Subgroup analysis of the proportion of the preference of white attire according to the sex of the child/adolescent



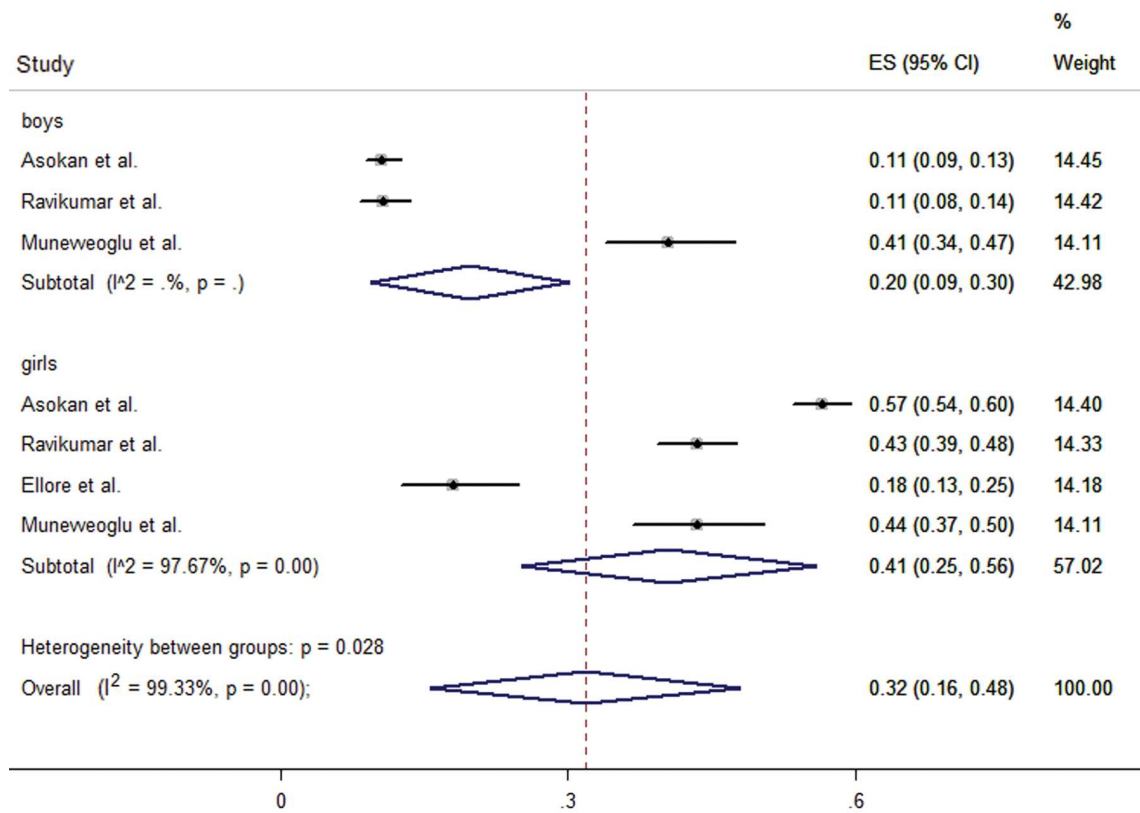
Supplementary Fig. 6: Subgroup analysis of the proportion of the preference of white attire according to anxiety or not



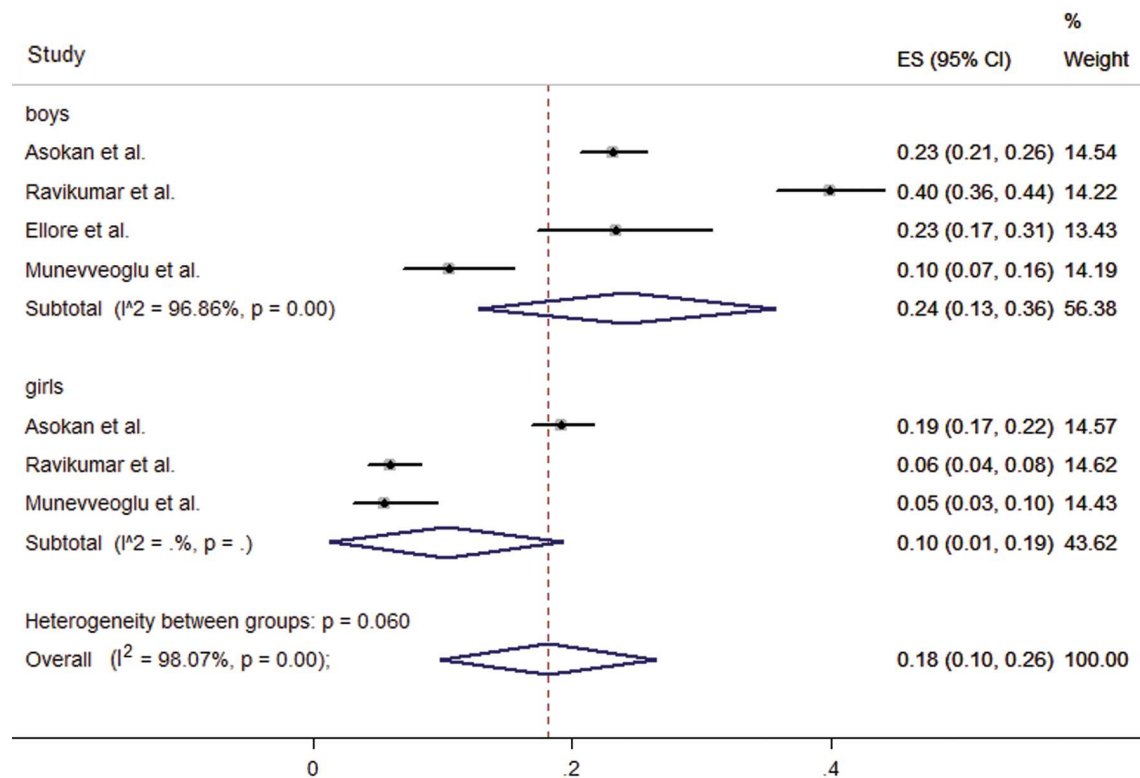
Supplementary Fig. 7: The overall proportion of the preference for a female dentist



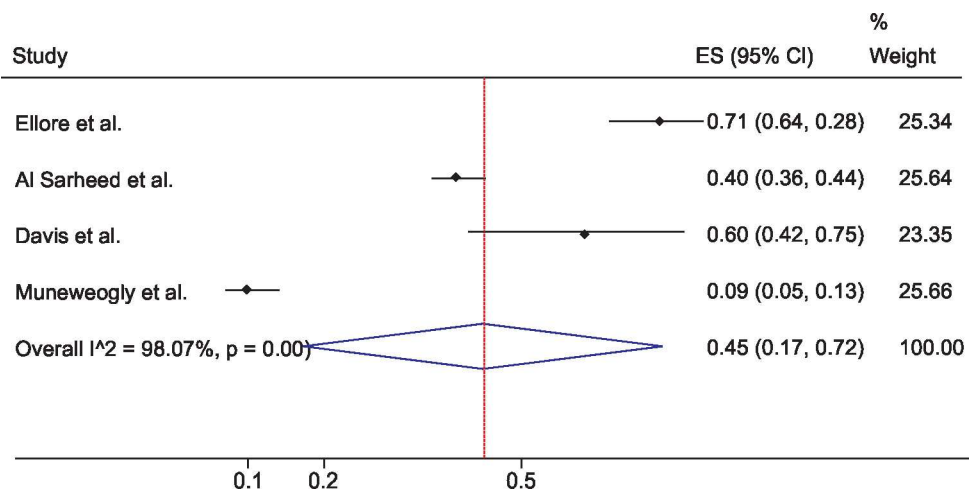
Supplementary Fig. 8: The overall proportion of the preference for a male dentist



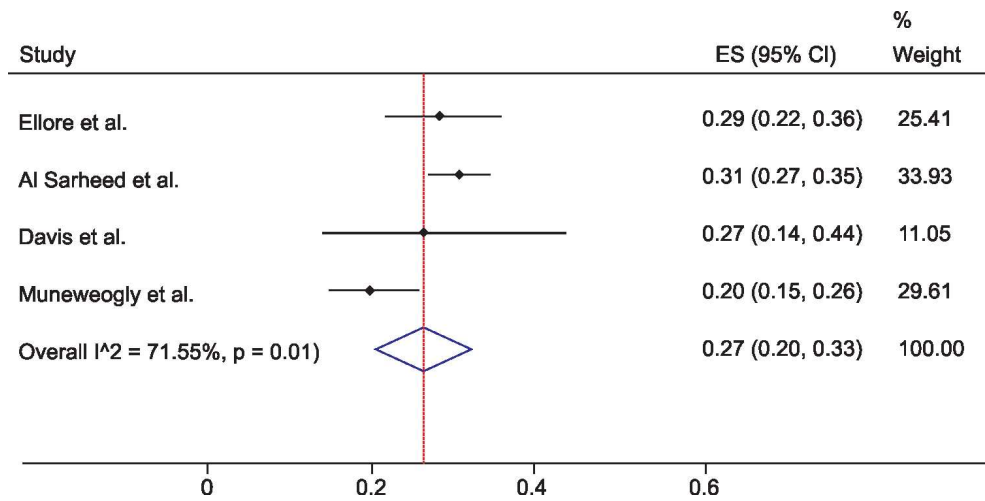
Supplementary Fig. 9: Subgroup analysis of the preference for a female dentist according to the sex of the child/adolescent



Supplementary Fig. 10: Subgroup analysis of the preference for a male dentist according to the sex of the child/adolescent



Supplementary Fig. 11: The overall proportion of the preference for use of PPE



Supplementary Fig. 12: The overall proportion of the preference for not using PPE