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Research Article

# Self-Perception, Psychosocial, Functional, Interest, and Knowledge Aspects Regarding Adults Orthodontic Treatment in Greater Jakarta

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## KEYWORDS

functional;  
malocclusion;  
orthodontic treatment;  
psychosocial;  
self-perception

## ABSTRACT

**Introduction:** Orthodontic treatment is the process of adjusting the position of the teeth and jaw to achieve optimal occlusion. Orthodontic treatment is generally performed on children and adolescents, but nowadays more adults are considering orthodontic treatment for aesthetic and dental health reasons. Factors that may influence the uptake of orthodontic treatment are cost, treatment time, gender, age, socioeconomic, knowledge, interest and psychological aspect. **Objectives:** This study aims to describe self-perception, psychosocial, functional, interest, and knowledge aspects regarding adults' orthodontic treatment in greater Jakarta areas. **Methods:** This cross-sectional study was held from October to December 2023. Sample comprised 196 adults who met the following eligibility criteria: (a) aged 35-50 years; (b) living in greater Jakarta; (c) no history of orthodontic treatment; and (d) had income higher than minimum regional wage. Samples were taken by purposive sampling. Demographic data and information were collected by means of a validated questionnaire. The questionnaire is consisted of 31 items concerning self-perception, psychosocial, functional, interest, and knowledge aspects regarding orthodontic treatment. **Results:** Majority of respondents felt dissatisfied with the arrangement of their teeth (60.2%), felt that they needed orthodontic treatment (71.4%), felt that poor arrangement of teeth was related to decreased social attractiveness (89.3%), and did not had complaints when speaking (80.1%) or jaw joints (51.0%). The level of knowledge about orthodontic treatment was classified as poor (64.3%), and the majority of respondents were interested in undergoing orthodontic treatment (85.7%). **Conclusion:** Majority of adults aged 35-50 years in greater Jakarta areas are interested to undergo orthodontic treatment as well as having high self-awareness of the purpose of orthodontic treatment. The level of knowledge regarding orthodontic treatment among adults aged 35-50 years in greater Jakarta areas is poor.

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## INTRODUCTION

The demand for orthodontic treatment in adults has increased worldwide in recent decades.<sup>1</sup> American Association of Orthodontists (AAO) data in 2020 shows an annual increase in demand for adult orthodontic treatments in the United States. The data also showed that 1 in 5 patients undergoing orthodontic treatment were adults, with an increase of 40% compared to the previous 10 years.<sup>2</sup> Another study in United Kingdom found an increase in demand for orthodontic treatment in adults over the past 5 years.<sup>3</sup> Another survey conducted by the American Association of Orthodontists (AAO) also showed an increase in the number of adults seeking orthodontic treatment over the past two decades.<sup>2</sup>

Perception is a person's ability to process an observation. A person can have different perceptions, even if the objects are the same. Differences in perception can arise due to differences in terms of the assessment system and personality traits of the individual concerned.<sup>4</sup> Psychosocial is a social factor that influences a person's thoughts or behavior that will be associated with one's thoughts on the surrounding community. Research in Jakarta states that there is a relationship between the use of orthodontic devices and psychosocial status.<sup>5</sup> Some of the factors that influence adults not to have orthodontic treatment are high cost, extended treatment duration, and uncomfortable treatment.<sup>6</sup> The level of subjective need for care can be assessed based on several factors such as gender, age, socioeconomics, perception or knowledge of oral and dental health, as well as a person's psychology. Differences in perception in assessing malocclusion are related to orthodontic treatment. Nowadays it is often found that someone has malocclusion but does not do orthodontic treatment because they are not aware about their malocclusion or do not know that they need orthodontic treatment.<sup>7</sup>

National Basic Health Research Data (Riskesdas) in 2018 stated that 57.6% of the population in Indonesia has dental and oral health problems, one of which is often found is malocclusion. In Indonesia, the prevalence of malocclusion reaches 80% of the population and is one of the significant oral health issues. Malocclusion is the third oral health problem after dental caries and periodontal disease.<sup>8</sup> Riskesdas also shows that among the total population in Jakarta, 40.8% are adult residents.<sup>9</sup> Jakarta has the highest percentage of the population receiving orthodontic treatment, which is 0.7%, with overall population in Indonesia receiving orthodontic treatment is 0.3%.<sup>10</sup> This study aims to describe the self-perception, psychosocial, functional, interest, and knowledge aspects regarding orthodontic treatment among adults in greater Jakarta areas.

## MATERIALS AND METHODS

This cross-sectional study was conducted in October until December 2023. The sample of this study was adult

who met the following inclusion criteria: (a) age 35-50 years; (b) living in greater Jakarta areas; (c) no previous history of orthodontic treatment; and (d) had income higher than minimum regional standard. Sample consist of 196 adults who were taken by purposive sampling. Participants agreed to the informed consent were requested to fill the validated questionnaire by completing the Google Forms (Google LLC, Mountain View, CA) sent through social media. Sociodemographic data consist of age, gender, and education. Factors affecting the preference of orthodontic appliances consist of participants self-perception, psychosocial, and oral disorders aspects. This study was approved by the Ethics Commission of the Faculty of Dentistry Universitas Trisakti No. 667/S1/KEPK/FKG/2023.

## Statistical Analysis

The validity and reliability of the questionnaire had been tested on 43 respondents prior to data retrieval. Validity was assessed using Pearson correlation coefficient ( $p < 0.05$ ). Reliability was confirmed with Cronbach's alpha coefficient. Data were analyzed using Microsoft Office Excel 365 MSO version 2306 (Redmond, WA). The distribution among categorical variables was represented in frequency tables.

## RESULTS

A total of 196 completed questionnaires were included in the analysis. The distribution of respondents based on demographic characteristics can be seen in Table 1. The majority of study respondents were aged between 35 to 40 years (65.8%) and female (58.2%). Majority of respondents had high level of education (92.3%), worked as employees in either private or public sectors (54.6%), were interested in undergoing orthodontic treatment (85.7%) and had poor level of knowledge regarding orthodontic treatment (64.3%).

The distribution of respondents based on aspects of self-perception can be seen in Table 2. Majority of respondents (60.2%) were dissatisfied with the arrangement of their teeth and felt the need for orthodontic treatment (71.4%). As many as 51.5% stated that they were not afraid to undergo orthodontic treatment. The distribution of respondents based on psychosocial aspects can be seen in Table 3. Majority of respondents felt that irregular arrangement of teeth is associated with a decrease in social attractiveness (89.3%), felt disturbed by their appearance if undergo orthodontic treatment (65.3%), and felt that the people around them thought that the arrangement of their teeth was irregular (79.1%). The distribution of respondents based on functional disorders aspects can be seen in Table 4. Majority of respondents had no complaints when speaking (80.1%), did not feel pain/clicking sound in the area around the ear or jaw joint during function (51.0%) and had no chewing disorders (69.4%).



**Table 1.** Respondent's characteristic profile

Variable	(n)	(%)
Age (years)		
35 - 40	129	65.8
41 - 45	30	15.3
46 - 50	37	18.9
Gender		
Male	82	41.8
Female	114	58.2
Education		
High School/Equivalent	4	2.1
Diploma	11	5.6
Bachelor/Master/Doctoral	181	92.3
Occupation		
Entrepreneur/Self-employment	52	26.5
CEO/Director	7	3.6
Teachers/Lecturers	20	10.2
Employee	107	54.6
Secretary	3	1.5
Other	7	3.6
Interest		
Not Interested	28	14.3
Interested	168	85.7
Knowledge		
Good	70	35.7
Poor	126	64.3

**Table 2.** Respondent's self-perception aspect

Question	Yes (%)	No (%)
Are you satisfied with the arrangement of your teeth?	78 (39.8)	118 (60.2)
Do you feel you need orthodontic treatment?	140 (71.4)	56 (28.6)
Are you afraid to undergo orthodontic treatment?	95 (48.5)	101 (51.5)

Based on Table 5, it can be observed that the majority of respondents answered correctly to the question about definition of orthodontic treatment (89.3%), have knowledge of the orthodontic treatment main goal (75.6%), but unaware of the preparations needed before installation of orthodontic devices (86.2%). Majority of respondents were not aware of the ideal age for undergoing orthodontic treatment, and the same percentage was uninformed about age limitation for orthodontic treatment (60.7%), correctly answered the

question regarding the average duration of orthodontic treatment (91.3%), knew what actions are not recommended while using orthodontic appliances (73%), and accurately responded to the question about the frequency of necessary visits during orthodontic treatment (68.9%).

**Table 3.** Respondent's psychosocial aspects

Question	Yes (%)	No (%)
Do you think the poor arrangement of teeth is associated with a decreased social attractiveness?	175 (89.3)	21 (10.7)
Do you feel annoyed by your appearance when treated with orthodontic?	128 (65.3)	68 (34.7)
Do people around you (co-workers, relatives, and friends) think your dental arrangement is irregular?	155 (79.1)	41 (20.9)

**Table 4.** Respondent's oral disorders aspects

Question	Yes (%)	No (%)
Do you have any complaints when you speak?	39 (19.9)	157 (80.1)
Do you feel pain/clicking sound when you move your jaw in the area around your ear/jaw joint?	96 (49.0)	100 (51.0)
Do you have chewing disorder while eating?	60 (30.6)	136 (69.4)

Majority of respondents knew how to take care their teeth during orthodontic treatment (79.6%) and were aware of who needs orthodontic treatment (82.7%). Majority of respondents correctly answered the question about what to do if a part of the orthodontic appliance becomes detached (81.1%), but as many as 61.7% did not know why it is important to follow the prescribed orthodontic treatment schedule. Majority of respondents were aware that a dental and jaw examination before starting orthodontic treatment is crucial to assess the condition of teeth and jaws (80.6%), knew how orthodontic treatment enhances oral health (68.9%), and aware of what to do in case of injury to the lips or mouth caused by orthodontic appliances (83.7%).

**Table 5.** Respondent's knowledge about orthodontic treatment

Question	Frequency (n)	Percentage (%)
<b>What is orthodontic treatment</b>		
True	175	89.3
False	21	10.7
<b>What are the main goals of orthodontic treatment</b>		
True	148	75.6
False	48	24.4
<b>What preparations need to be done before installing orthodontic appliances</b>		
True	27	13.8
False	169	86.2
<b>What is the ideal age for orthodontic treatment</b>		
True	77	39.3
False	119	60.7
<b>What is the maximum age limit for someone to undergo orthodontic treatment</b>		
True	77	39.3
False	119	60.7
<b>What is the average duration of orthodontic treatment</b>		
True	179	91.3
False	17	8.7
<b>What is not recommended when using orthodontic appliances</b>		
True	143	73.0
False	53	27.0
<b>What frequency of visits is required during orthodontic treatment</b>		
True	135	68.9
False	61	31.1
<b>How to care for teeth during orthodontic treatment</b>		
True	156	79.6
False	40	20.4
<b>Who needs orthodontic treatment</b>		
True	162	82.7
False	34	17.3
<b>What would you do if a part of an orthodontic appliances comes off from your tooth</b>		
True	159	81.1
False	37	18.9
<b>Why it is important to follow an established orthodontic treatment schedule</b>		
True	75	38.3
False	111	61.7
<b>Why is it important to undergo a dental and jaw examination before starting orthodontic treatment</b>		
True	158	80.6
False	38	19.4
<b>How orthodontic treatment improves oral health</b>		
True	135	68.9
False	61	31.1
<b>What to do if there is injury to the lips or mouth caused by orthodontic devices</b>		
True	164	83.7
False	32	16.3

## DISCUSSION

Based on self-perception factors, the majority of respondents were dissatisfied with the arrangement of their teeth and as many as felt the need for orthodontic treatment. These results agreed with previous research that stated the majority of people have self-awareness of their need to undergo orthodontic treatment.<sup>11</sup> The majority of respondents were not afraid to undergo orthodontic treatment. These results are not in line with previous research that most people have negative attitudes toward orthodontic treatment for fear of the pain associated with orthodontic treatment.<sup>12</sup> Other research suggests that some people may avoid orthodontic treatment because they are concerned about the aesthetic appearance during the use of orthodontic appliances.<sup>13</sup> This shows that self-perception regarding orthodontic treatment may vary in different population.

Based on psychosocial aspect, most respondents believe that the irregular arrangement of teeth is associated with a decrease in social attractiveness. The results are in line with previous research in which the majority of people believe that well-aligned teeth have an impact on social career and feel less confident before orthodontic treatment.<sup>14</sup> Other studies state that some individuals may avoid orthodontic treatment due to concerns about the aesthetic appearance during the use of orthodontic appliances.<sup>15</sup> Therefore, it can be concluded that an individual's psychosocial status can be influenced by dental aesthetic factors.<sup>16</sup>

Based on the factors of functional disorders in the mouth, the majority of respondents have no complaints when speaking. The majority of respondents did not feel pain or clicking sounds in the area around the ear or jaw joint during function. The majority of respondents did not have chewing disorders while eating. This is not in line with previous research, that the majority of people have functional disorders of the mouth such as complaints when speaking, malocclusion, bruxism, and chewing disorders.<sup>17</sup> Another study states that the level of awareness of orthodontic treatment is mostly moderate, with woman having a higher awareness of the need for orthodontic treatment compared to man.<sup>18</sup> It shows that an individual may have functional disorders in the oral cavity even though they may not feel like they have functional disorder in the oral cavity.

Based on the knowledge factor regarding orthodontic treatment, it shows that the majority of respondents answered correctly to the question about the average duration of orthodontic treatment. The majority of respondents answered incorrectly to the question about the preparations needed before installing orthodontic appliances. The level of knowledge about orthodontic

treatment showed that the majority of respondents had poor knowledge. This is in line with previous research suggesting that the majority of adults have a moderate level of knowledge about orthodontic treatment.<sup>19</sup>

Based on the results, it can be seen that the majority of respondents are interested in undergoing orthodontic treatment. This is in line with previous study that suggested that the 30s are more interested in orthodontic treatment than the 40s. Respondents in their 40s thought they were too old to undergo orthodontic treatment.<sup>20</sup> The majority of female respondents were interested in undergoing orthodontic treatment. This is in line with previous research that suggests that women undergo more orthodontic treatment than men. The main motivation for women to do orthodontic treatment is for aesthetics. Women also have higher awareness of orthodontic treatment needs than men.<sup>21,22</sup>

People with higher socioeconomic level has a high level of awareness to undergo orthodontic treatment. The majority of respondents with a high level of education are interested in undergoing orthodontic treatment. Education also affects the level of awareness of oral function so that the need for orthodontic treatment also increases.<sup>23</sup> Other studies state that the majority of people are motivated to undergo treatment if the cost of treatment is more affordable.<sup>24</sup>

## CONCLUSION

Majority of adults aged 35-50 years in greater Jakarta areas are interested to undergo orthodontic treatment as well as having high self-awareness of the purpose of orthodontic treatment. They are dissatisfied with the arrangement of their teeth and feel that irregular arrangement of the teeth is associated with a decrease in social attractiveness. The level of knowledge regarding orthodontic treatment among adults aged 35-50 years in greater Jakarta areas is poor.

## CONFLICT OF INTEREST

There is no conflict of interest in this research. The respondents who took part in the study have read the explanation of the study, understood the purpose of the study and agree to participate on the study.

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# Self-Perception, Psychosocial, Functional, Interest, and Knowledge Aspects Regarding Adults Orthodontic Treatment in Greater Jakarta

*by Lia Hapsari Andayani FKG*

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## KEYWORDS

functional;  
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self-perception

## ABSTRACT

**Introduction:** Orthodontic treatment is the process of adjusting the position of the teeth and jaw to achieve optimal occlusion. Orthodontic treatment is generally performed on children and adolescents, but nowadays more adults are considering orthodontic treatment for aesthetic and dental health reasons. Factors that may influence the uptake of orthodontic treatment are cost, treatment time, gender, age, socioeconomic, knowledge, interest and psychological aspect. **Objectives:** This study aims to describe self-perception, psychosocial, functional, interest, and knowledge aspects regarding adults' orthodontic treatment in greater Jakarta areas. **Methods:** This cross-sectional study was held from October to December 2023. Sample comprised 196 adults who met the following eligibility criteria: (a) aged 35-50 years; (b) living in greater Jakarta; (c) no history of orthodontic treatment; and (d) had income higher than minimum regional wage. Samples were taken by purposive sampling. Demographic data and information were collected by means of a validated questionnaire. The questionnaire is consisted of 31 items concerning self-perception, psychosocial, functional, interest, and knowledge aspects regarding orthodontic treatment. **Results:** Majority of respondents felt dissatisfied with the arrangement of their teeth (60.2%), felt that they needed orthodontic treatment (71.4%), felt that poor arrangement of teeth was related to decreased social attractiveness (89.3%), and did not had complaints when speaking (80.1%) or jaw joints (51.0%). The level of knowledge about orthodontic treatment was classified as poor (64.3%), and the majority of respondents were interested in undergoing orthodontic treatment (85.7%). **Conclusion:** Majority of adults aged 35-50 years in greater Jakarta areas are interested to undergo orthodontic treatment as well as having high self-awareness of the purpose of orthodontic treatment. The level of knowledge regarding orthodontic treatment among adults aged 35-50 years in greater Jakarta areas is poor.

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## INTRODUCTION

The demand for orthodontic treatment in adults has increased worldwide in recent decades.<sup>1</sup> American Association of Orthodontists (AAO) data in 2020 shows an annual increase in demand for adult orthodontic treatments in the United States. The data also showed that 1 in 5 patients undergoing orthodontic treatment were adults, with an increase of 40% compared to the previous 10 years.<sup>2</sup> Another study in United Kingdom found an increase in demand for orthodontic treatment in adults over the past 5 years.<sup>3</sup> Another survey conducted by the American Association of Orthodontists (AAO) also showed an increase in the number of adults seeking orthodontic treatment over the past two decades.<sup>2</sup>

Perception is a person's ability to process an observation. A person can have different perceptions, even if the objects are the same. Differences in perception can arise due to differences in terms of the assessment system and personality traits of the individual concerned.<sup>4</sup> Psychosocial is a social factor that influences a person's thoughts or behavior that will be associated with one's thoughts on the surrounding community. Research in Jakarta states that there is a relationship between the use of orthodontic devices and psychosocial status.<sup>5</sup> Some of the factors that influence adults not to have orthodontic treatment are high cost, extended treatment duration, and uncomfortable treatment.<sup>6</sup> The level of subjective need for care can be assessed based on several factors such as gender, age, socioeconomics, perception or knowledge of oral and dental health, as well as a person's psychology. Differences in perception in assessing malocclusion are related to orthodontic treatment. Nowadays it is often found that someone has malocclusion but does not do orthodontic treatment because they are not aware about their malocclusion or do not know that they need orthodontic treatment.<sup>7</sup>

National Basic Health Research Data (Riskesdas) in 2018 stated that 57.6% of the population in Indonesia has dental and oral health problems, one of which is often found is malocclusion. In Indonesia, the prevalence of malocclusion reaches 80% of the population and is one of the significant oral health issues. Malocclusion is the third oral health problem after dental caries and periodontal disease.<sup>8</sup> Riskesdas also shows that among the total population in Jakarta, 40.8% are adult residents.<sup>9</sup> Jakarta has the highest percentage of the population receiving orthodontic treatment, which is 0.7%, with overall population in Indonesia receiving orthodontic treatment is 0.3%.<sup>10</sup> This study aims to describe the self-perception, psychosocial, functional, interest, and knowledge aspects regarding orthodontic treatment among adults in greater Jakarta areas.

## MATERIALS AND METHODS

This cross-sectional study was conducted in October until December 2023. The sample of this study was adult

who met the following inclusion criteria: (a) age 35-50 years; (b) living in greater Jakarta areas; (c) no previous history of orthodontic treatment; and (d) had income higher than minimum regional standard. Sample consist of 196 adults who were taken by purposive sampling. Participants agreed to the informed consent were requested to fill the validated questionnaire by completing the Google Forms (Google LLC, Mountain View, CA) sent through social media. Sociodemographic data consist of age, gender, and education. Factors affecting the preference of orthodontic appliances consist of participants self-perception, psychosocial, and oral disorders aspects. This study was approved by the Ethics Commission of the Faculty of Dentistry Universitas Trisakti No. 667/S1/KEPK/FKG/2023.

## Statistical Analysis

The validity and reliability of the questionnaire had been tested on 43 respondents prior to data retrieval. Validity was assessed using Pearson correlation coefficient ( $p < 0.05$ ). Reliability was confirmed with Cronbach's alpha coefficient. Data were analyzed using Microsoft Office Excel 365 MSO version 2306 (Redmond, WA). The distribution among categorical variables was represented in frequency tables.

## RESULTS

A total of 196 completed questionnaires were included in the analysis. The distribution of respondents based on demographic characteristics can be seen in Table 1. The majority of study respondents were aged between 35 to 40 years (65.8%) and female (58.2%). Majority of respondents had high level of education (92.3%), worked as employees in either private or public sectors (54.6%), were interested in undergoing orthodontic treatment (85.7%) and had poor level of knowledge regarding orthodontic treatment (64.3%).

The distribution of respondents based on aspects of self-perception can be seen in Table 2. Majority of respondents (60.2%) were dissatisfied with the arrangement of their teeth and felt the need for orthodontic treatment (71.4%). As many as 51.5% stated that they were not afraid to undergo orthodontic treatment. The distribution of respondents based on psychosocial aspects can be seen in Table 3. Majority of respondents felt that irregular arrangement of teeth is associated with a decrease in social attractiveness (89.3%), felt disturbed by their appearance if undergo orthodontic treatment (65.3%), and felt that the people around them thought that the arrangement of their teeth was irregular (79.1%). The distribution of respondents based on functional disorders aspects can be seen in Table 4. Majority of respondents had no complaints when speaking (80.1%), did not feel pain/clicking sound in the area around the ear or jaw joint during function (51.0%) and had no chewing disorders (69.4%).

**Table 1.** Respondent's characteristic profile

Variable	(n)	(%)
Age (years)		
35 - 40	129	65.8
41 - 45	30	15.3
46 - 50	37	18.9
Gender		
Male	82	41.8
Female	114	58.2
Education		
High School/Equivalent	4	2.1
Diploma	11	5.6
Bachelor/Master/Doctoral	181	92.3
Occupation		
Entrepreneur/Self-employment	52	26.5
CEO/Director	7	3.6
Teachers/Lecturers	20	10.2
Employee	107	54.6
Secretary	3	1.5
Other	7	3.6
Interest		
Not Interested	28	14.3
Interested	168	85.7
Knowledge		
Good	70	35.7
Poor	126	64.3

**Table 2.** Respondent's self-perception aspect

Question	Yes (%)	No (%)
Are you satisfied with the arrangement of your teeth?	78 (39.8)	118 (60.2)
Do you feel you need orthodontic treatment?	140 (71.4)	56 (28.6)
Are you afraid to undergo orthodontic treatment?	95 (48.5)	101 (51.5)

Based on Table 5, it can be observed that the majority of respondents answered correctly to the question about definition of orthodontic treatment (89.3%), have knowledge of the orthodontic treatment main goal (75.6%), but unaware of the preparations needed before installation of orthodontic devices (86.2%). Majority of respondents were not aware of the ideal age for undergoing orthodontic treatment, and the same percentage was uninformed about age limitation for orthodontic treatment (60.7%), correctly answered the

question regarding the average duration of orthodontic treatment (91.3%), knew what actions are not recommended while using orthodontic appliances (73%), and accurately responded to the question about the frequency of necessary visits during orthodontic treatment (68.9%).

**Table 3.** Respondent's psychosocial aspects

Question	Yes (%)	No (%)
Do you think the poor arrangement of teeth is associated with a decreased social attractiveness?	175 (89.3)	21 (10.7)
Do you feel annoyed by your appearance when treated with orthodontic?	128 (65.3)	68 (34.7)
Do people around you (co-workers, relatives, and friends) think your dental arrangement is irregular?	155 (79.1)	41 (20.9)

**Table 4.** Respondent's oral disorders aspects

Question	Yes (%)	No (%)
Do you have any complaints when you speak?	39 (19.9)	157 (80.1)
Do you feel pain/clicking sound when you move your jaw in the area around your ear/jaw joint?	96 (49.0)	100 (51.0)
Do you have chewing disorder while eating?	60 (30.6)	136 (69.4)

Majority of respondents knew how to take care their teeth during orthodontic treatment (79.6%) and were aware of who needs orthodontic treatment (82.7%). Majority of respondents correctly answered the question about what to do if a part of the orthodontic appliance becomes detached (81.1%), but as many as 61.7% did not know why it is important to follow the prescribed orthodontic treatment schedule. Majority of respondents were aware that a dental and jaw examination before starting orthodontic treatment is crucial to assess the condition of teeth and jaws (80.6%), knew how orthodontic treatment enhances oral health (68.9%), and aware of what to do in case of injury to the lips or mouth caused by orthodontic appliances (83.7%).



**Table 5.** Respondent's knowledge about orthodontic treatment

Question	Frequency (n)	Percentage (%)
<b>What is orthodontic treatment</b>		
True	175	89.3
False	21	10.7
<b>What are the main goals of orthodontic treatment</b>		
True	148	75.6
False	48	24.4
<b>What preparations need to be done before installing orthodontic appliances</b>		
True	27	13.8
False	169	86.2
<b>What is the ideal age for orthodontic treatment</b>		
True	77	39.3
False	119	60.7
<b>What is the maximum age limit for someone to undergo orthodontic treatment</b>		
True	77	39.3
False	119	60.7
<b>What is the average duration of orthodontic treatment</b>		
True	179	91.3
False	17	8.7
<b>What is not recommended when using orthodontic appliances</b>		
True	143	73.0
False	53	27.0
<b>What frequency of visits is required during orthodontic treatment</b>		
True	135	68.9
False	61	31.1
<b>How to care for teeth during orthodontic treatment</b>		
True	156	79.6
False	40	20.4
<b>Who needs orthodontic treatment</b>		
True	162	82.7
False	34	17.3
<b>What would you do if a part of an orthodontic appliances comes off from your tooth</b>		
True	159	81.1
False	37	18.9
<b>Why it is important to follow an established orthodontic treatment schedule</b>		
True	75	38.3
False	111	61.7
<b>Why is it important to undergo a dental and jaw examination before starting orthodontic treatment</b>		
True	158	80.6
False	38	19.4
<b>How orthodontic treatment improves oral health</b>		
True	135	68.9
False	61	31.1
<b>What to do if there is injury to the lips or mouth caused by orthodontic devices</b>		
True	164	83.7
False	32	16.3

## DISCUSSION

Based on self-perception factors, the majority of respondents were dissatisfied with the arrangement of their teeth and as many as felt the need for orthodontic treatment. These results agreed with previous research that stated the majority of people have self-awareness of their need to undergo orthodontic treatment.<sup>11</sup> The majority of respondents were not afraid to undergo orthodontic treatment. These results are not in line with previous research that most people have negative attitudes toward orthodontic treatment for fear of the pain associated with orthodontic treatment.<sup>12</sup> Other research suggests that some people may avoid orthodontic treatment because they are concerned about the aesthetic appearance during the use of orthodontic appliances.<sup>13</sup> This shows that self-perception regarding orthodontic treatment may vary in different population.

Based on psychosocial aspect, most respondents believe that the irregular arrangement of teeth is associated with a decrease in social attractiveness. The results are in line with previous research in which the majority of people believe that well-aligned teeth have an impact on social career and feel less confident before orthodontic treatment.<sup>14</sup> Other studies state that some individuals may avoid orthodontic treatment due to concerns about the aesthetic appearance during the use of orthodontic appliances.<sup>15</sup> Therefore, it can be concluded that an individual's psychosocial status can be influenced by dental aesthetic factors.<sup>16</sup>

Based on the factors of functional disorders in the mouth, the majority of respondents have no complaints when speaking. The majority of respondents did not feel pain or clicking sounds in the area around the ear or jaw joint during function. The majority of respondents did not have chewing disorders while eating. This is not in line with previous research, that the majority of people have functional disorders of the mouth such as complaints when speaking, malocclusion, bruxism, and chewing disorders.<sup>17</sup> Another study states that the level of awareness of orthodontic treatment is mostly moderate, with woman having a higher awareness of the need for orthodontic treatment compared to man.<sup>18</sup> It shows that an individual may have functional disorders in the oral cavity even though they may not feel like they have functional disorder in the oral cavity.

Based on the knowledge factor regarding orthodontic treatment, it shows that the majority of respondents answered correctly to the question about the average duration of orthodontic treatment. The majority of respondents answered incorrectly to the question about the preparations needed before installing orthodontic appliances. The level of knowledge about orthodontic

treatment showed that the majority of respondents had poor knowledge. This is in line with previous research suggesting that the majority of adults have a moderate level of knowledge about orthodontic treatment.<sup>19</sup>

Based on the results, it can be seen that the majority of respondents are interested in undergoing orthodontic treatment. This is in line with previous study that suggested that the 30s are more interested in orthodontic treatment than the 40s. Respondents in their 40s thought they were too old to undergo orthodontic treatment.<sup>20</sup> The majority of female respondents were interested in undergoing orthodontic treatment. This is in line with previous research that suggests that women undergo more orthodontic treatment than men. The main motivation for women to do orthodontic treatment is for aesthetics. Women also have higher awareness of orthodontic treatment needs than men.<sup>21,22</sup>

People with higher socioeconomic level has a high level of awareness to undergo orthodontic treatment. The majority of respondents with a high level of education are interested in undergoing orthodontic treatment. Education also affects the level of awareness of oral function so that the need for orthodontic treatment also increases.<sup>23</sup> Other studies state that the majority of people are motivated to undergo treatment if the cost of treatment is more affordable.<sup>24</sup>

## CONCLUSION

Majority of adults aged 35-50 years in greater Jakarta areas are interested to undergo orthodontic treatment as well as having high self-awareness of the purpose of orthodontic treatment. They are dissatisfied with the arrangement of their teeth and feel that irregular arrangement of the teeth is associated with a decrease in social attractiveness. The level of knowledge regarding orthodontic treatment among adults aged 35-50 years in greater Jakarta areas is poor.

## CONFLICT OF INTEREST

There is no conflict of interest in this research. The respondents who took part in the study have read the explanation of the study, understood the purpose of the study and agree to participate on the study.

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The revision itself is due on June 11, 2024

Thank you for your kind cooperation and we look forward to receiving the revision.

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1           **Self-Perception, Psychosocial, Functional, Interest, and Knowledge Aspects**  
2           **Regarding Adults Orthodontic Treatment in Greater Jakarta**

3  
4   **ABSTRACT**

5   Introduction:

6   Orthodontic treatment is the process of adjusting the position of the teeth and jaw to achieve optimal  
7   occlusion. Orthodontic treatment is generally performed on children and adolescents, but nowadays  
8   more adults are considering orthodontic treatment for aesthetic and dental health reasons. Factors  
9   that may influence the uptake of orthodontic treatment are cost, treatment time, gender, age,  
10   socioeconomic, knowledge, interest and psychological aspect.

11   Objective:

12   This study aims to describe self-perception, psychosocial, functional, interest, and knowledge aspects  
13   regarding adults' orthodontic treatment in greater Jakarta areas.

14   Methods:

15   This cross-sectional study was held from October to December 2023. Sample comprised 196 adults  
16   who met the following eligibility criteria: (a) aged 35-50 years; (b) living in greater Jakarta; (c) no  
17   history of orthodontic treatment; and (d) had income higher than minimum regional wage. Samples  
18   were taken by purposive sampling. Demographic data and information were collected by means of a  
19   validated questionnaire. The questionnaire is consisted of 31 items concerning self-perception,  
20   psychosocial, functional, interest, and knowledge aspects regarding orthodontic treatment.

21   Results:

22   Majority of respondents felt dissatisfied with the arrangement of their teeth (60.2%), felt that they  
23   needed orthodontic treatment (71.4%), felt that poor arrangement of teeth was related to decreased  
24   social attractiveness (89.3%), and did not had complaints when speaking (80.1%) or jaw joints (51.0%).  
25   The level of knowledge about orthodontic treatment was classified as poor (64.3%), and the majority  
26   of respondents were interested in undergoing orthodontic treatment (85.7%).

27   Conclusion:

28   Majority of adults aged 35-50 years in greater Jakarta areas are interested to undergo orthodontic  
29   treatment as well as having high self-awareness of the purpose of orthodontic treatment. The level of  
30   knowledge regarding orthodontic treatment among adults aged 35-50 years in greater Jakarta areas  
31   is poor.

32  
33   Keywords:

34   functional, malocclusion, orthodontic treatment, psychosocial, self-perception



## 35 INTRODUCTION

36  
37 The demand for orthodontic treatment in adults has increased worldwide in recent decades.<sup>1</sup>  
38 American Association of Orthodontists (AAO) data in 2020 shows an annual increase in demand for adult  
39 orthodontic treatments in the United States. The data also showed that 1 in 5 patients undergoing  
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44

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46 even if the objects are the same. Differences in perception can arise due to differences in terms of the  
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49 community. Research in Jakarta states that there is a relationship between the use of orthodontic devices  
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52 care can be assessed based on several factors such as gender, age, socioeconomics, perception or  
53 knowledge of oral and dental health, as well as a person's psychology. Differences in perception in  
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55 malocclusion but does not do orthodontic treatment because they or not aware about their malocclusion  
56 or do not know that they need orthodontic treatment.<sup>7</sup>  
57

58 National Basic Health Research Data (Riskesmas) in 2018 stated that 57.6% of the population in  
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60 the prevalence of malocclusion reaches 80% of the population and is one of the significant oral health  
61 issues. Malocclusion is the third oral health problem after dental caries and periodontal disease.<sup>8</sup> Riskesdas  
62 also shows that among the total population in Jakarta, 40.8% are adult residents.<sup>9</sup> Jakarta has the highest  
63 percentage of the population receiving orthodontic treatment, which is 0.7%, with overall population in  
64 Indonesia receiving orthodontic treatment is 0.3%.<sup>10</sup> This study aims to describe the self-perception,  
65 psychosocial, functional, interest, and knowledge aspects regarding orthodontic treatment among adults  
66 in greater Jakarta areas.  
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## 69 MATERIALS AND METHODS

70 This cross-sectional study was conducted in October until December 2023. The sample of this  
71 study was adult who met the following inclusion criteria: (a) age 35-50 years; (b) living in greater Jakarta  
72 areas; (c) no previous history of orthodontic treatment; and (d) had income higher than minimum regional  
73 standard. Sample consist of 196 adults who were taken by purposive sampling. Participants agreed to the  
74 informed consent were requested to fill the validated questionnaire by completing the Google Forms  
75 (Google LLC, Mountain View, CA) sent through social media. Sociodemographic data consist of age,  
76 gender, and education. Factors affecting the preference of orthodontic appliances consist of participants  
77 self-perception, psychosocial, and oral disorders aspects. This study was approved by the Ethics  
78 Commission of the Faculty of Dentistry Universitas Trisakti No. 667/S1/KEPK/FGK/2023.  
79

### 80 Statistical Analysis

81 The validity and reliability of the questionnaire had been tested on 43 respondents prior to data  
82 retrieval. Validity was assessed using Pearson correlation coefficient ( $p < 0.05$ ). Reliability was confirmed  
83 with Cronbach's alpha coefficient.<sup>17</sup> Data were analyzed using Microsoft Office Excel 365 MSO version  
84 2306 (Redmond, WA). The distribution among categorical variables was represented in frequency tables.  
85

86 **RESULTS**

87 A total of 196 completed questionnaires were included in the analysis. The distribution of  
 88 respondents based on demographic characteristics can be seen in Table 1. The majority of study  
 89 respondents were aged between 35 to 40 years (65.8%) and female (58.2%). Majority of respondents  
 90 had high level of education (92.3%), worked as employees in either private or public sectors (54.5%),  
 91 were interested in undergoing orthodontic treatment (85.7%) and had poor level of knowledge regarding  
 92 orthodontic treatment (64.3%).

93  
 94  
 95 **Table 1.** Respondent’s characteristic profile

**Commented [A1]:** Please explain what is D1/D2/D3, S1/S2/S3 education

Variable	Frequency (n)	Percentage (%)
<b>Age</b>		
35 - 40 years	129	65.8
41 - 45 years	30	15.3
46 - 50 years	37	18.9
<b>Gender</b>		
Male	82	41.8
Female	114	58.2
<b>Education</b>		
High School/Equivalent	4	2.0
D1/D2/D3	11	5.6
S1/S2/S3	181	92.3
<b>Occupation</b>		
Entrepreneur/Self-employment	52	26.5
CEO/Director	7	3.6
Teachers/Lecturers	20	10.2
Employee	107	54.5
Secretary	3	1.5
Other	7	3.6
<b>Interest</b>		
Not Interested	28	14.3
Intrested	168	85.7
<b>Knowledge</b>		
Good	70	35.7
Poor	126	64.3

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 97  
 98 The distribution of respondents based on aspects of self-perception can be seen in Table 2.  
 99 Majority of respondents (60.2%) were dissatisfied with the arrangement of their teeth and felt the need  
 100 for orthodontic treatment (71.4%). As many as 51.5% stated that they were not afraid to undergo  
 101 orthodontic treatment. The distribution of respondents based on psychosocial aspects can be seen in  
 102 Table 3. Majority of respondents felt that irregular arrangement of teeth is associated with a decrease  
 103 in social attractiveness (89.3%), felt disturbed by their appearance if undergo orthodontic treatment  
 104 (65.3%), and felt that the people around them thought that the arrangement of their teeth was irregular  
 105 (79.1%). The distribution of respondents based on functional disorders aspects can be seen in Table 4.  
 106 Majority of respondents had no complaints when speaking (80.1%), did not feel pain/clicking sound in  
 107 the area around the ear or jaw joint during function (51.0%) and had no chewing disorders (69.4%).

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**Table 2.** Respondent's self-perception aspect

Question	Yes (%)	No (%)
Are you satisfied with the arrangement of your teeth?	78 (39,8)	118 (60,2)
Do you feel you need orthodontic treatment?	140 (71,4)	56 (28,6)
Are you afraid to undergo orthodontic treatment?	95 (48,5)	101 (51,5)

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**Table 3.** Respondent's psychosocial aspects

Question	Yes (%)	No (%)
Do you think the poor arrangement of teeth is associated with a decreased social attractiveness?	175 (89,3)	21 (10,7)
Do you feel annoyed by your appearance when treated with orthodontic?	128 (65,3)	68 (34,7)
Do people around you (co-workers, relatives, and friends) think your dental arrangement is irregular?	155 (79,1)	41 (20,9)

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**Table 4.** Respondent's oral disorders aspects

Question	Ya (%)	Tidak (%)
Do you have any complaints when you speak?	39 (19,9)	157 (80,1)
Do you feel pain/clicking sound when you move your jaw in the area around your ear/jaw joint?	96 (49,0)	100 (51,0)
Do you have chewing disorder while eating?	60 (30,6)	136 (69,4)

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Based on Table 5, it can be observed that the majority of respondents answered correctly to the question about definition of orthodontic treatment (89.3%), have knowledge of the orthodontic treatment main goal (75.6%), but unaware of the preparations needed before installation of orthodontic devices (86.2%). Majority of respondents were not aware of the ideal age for undergoing orthodontic treatment, and the same percentage was uninformed about age limitation for orthodontic treatment (60.7%), correctly answered the question regarding the average duration of orthodontic treatment (91.3%), knew what actions are not recommended while using orthodontic appliances (73%), and accurately responded to the question about the frequency of necessary visits during orthodontic treatment (68.9%).

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Majority of respondents knew how to take care their teeth during orthodontic treatment (79.6%) and were aware of who needs orthodontic treatment (82.7%). Majority of respondents correctly answered the question about what to do if a part of the orthodontic appliance becomes detached (81.1%), but as many as 61.7% did not know why it is important to follow the prescribed orthodontic treatment schedule. Majority of respondents were aware that a dental and jaw examination before starting orthodontic treatment is crucial to assess the condition of teeth and jaws (80.6%), knew how orthodontic treatment enhances oral health (68.9%), and aware of what to do in case of injury to the lips or mouth caused by orthodontic appliances (83.7%).

**Table 5.** Respondent's knowledge about orthodontic treatment

Question	Frequency (n)	Percentage (%)
What is orthodontic treatment		
True	175	89.3
False	21	10.7
What are the main goals of orthodontic treatment		
True	148	75.6
False	48	24.4
What preparations need to be done before installing orthodontic appliances		
True	27	13.8
False	169	86.2
What is the ideal age for orthodontic treatment		
True	77	39.3
False	119	60.7
What is the maximum age limit for someone to undergo orthodontic treatment		
True	77	39.3
False	119	60.7
What is the average duration of orthodontic treatment		
True	179	91.3
False	17	8.6
What is not recommended when using orthodontic appliances		
True	143	73.0
False	53	27.0
What frequency of visits is required during orthodontic treatment		
True	135	68.9
False	61	31.1
How to care for teeth during orthodontic treatment		
True	156	79.6
False	40	20.4
Who needs orthodontic treatment		
True	162	82.7
False	34	17.3
What would you do if a part of an orthodontic appliances comes off from your tooth		
True	159	81.1
False	37	18.9
Why it is important to follow an established orthodontic treatment schedule		
True	75	38.3
False	111	61.7
Why is it important to undergo a dental and jaw examination before starting orthodontic treatment		
True	158	80.6
False	38	19.4
How orthodontic treatment improves oral health		
True	135	68.9
False	61	31.1
What to do if there is injury to the lips or mouth caused by orthodontic devices		
True	164	83.7
False	32	16.3

140 **DISCUSSION**

141  
142 Based on self-perception factors, the majority of respondents were dissatisfied with the  
143 arrangement of their teeth and as many as felt the need for orthodontic treatment. These results agreed  
144 with previous research that stated the majority of people have self-awareness of their need to undergo  
145 orthodontic treatment.<sup>11</sup> The majority of respondents were not afraid to undergo orthodontic  
146 treatment. These results are not in line with previous research that most people have negative attitudes  
147 toward orthodontic treatment for fear of the pain associated with orthodontic treatment.<sup>12</sup> Other  
148 research suggests that some people may avoid orthodontic treatment because they are concerned about  
149 the aesthetic appearance during the use of orthodontic appliances.<sup>13</sup> This shows that self-perception  
150 regarding orthodontic treatment may vary in different population.

151  
152 Based on psychosocial aspect, most respondents believe that the irregular arrangement of teeth  
153 is associated with a decrease in social attractiveness. The results are in line with previous research in  
154 which the majority of people believe that well-aligned teeth have an impact on social career and feel less  
155 confident before orthodontic treatment.<sup>14</sup> Other studies state that some individuals may avoid  
156 orthodontic treatment due to concerns about the aesthetic appearance during the use of orthodontic  
157 appliances.<sup>15</sup> Therefore, it can be concluded that an individual's psychosocial status can be influenced by  
158 dental aesthetic factors.<sup>16</sup>

159  
160 Based on the factors of functional disorders in the mouth, the majority of respondents have no  
161 complaints when speaking. The majority of respondents did not feel pain / clicking sounds in the area  
162 around the ear / jaw joint during function. The majority of respondents did not have chewing disorders  
163 while eating. This is not in line with previous research, that the majority of people have functional  
164 disorders of the mouth such as complaints when speaking, malocclusion, bruxism, and chewing  
165 disorders.<sup>17</sup> Another study states that the level of awareness of orthodontic treatment is mostly  
166 moderate, with woman having a higher awareness of the need for orthodontic treatment compared to  
167 man.<sup>18</sup> It shows that an individual may have functional disorders in the oral cavity even though they may  
168 not feel like they have functional disorder in the oral cavity.

169  
170 Based on the knowledge factor regarding orthodontic treatment, it shows that the majority of  
171 respondents answered correctly to the question about the average duration of orthodontic treatment.  
172 The majority of respondents answered incorrectly to the question about the preparations needed before  
173 installing orthodontic appliances. The level of knowledge about orthodontic treatment showed that the  
174 majority of respondents had poor knowledge. This is in line with previous research suggesting that the  
175 majority of adults have a moderate level of knowledge about orthodontic treatment.<sup>19</sup>

176  
177 Based on the results, it can be seen that the majority of respondents are interested in undergoing  
178 orthodontic treatment. This is in line with previous study that suggested that the 30s are more interested  
179 in orthodontic treatment than the 40s. Respondents in their 40s thought they were too old to undergo  
180 orthodontic treatment.<sup>20</sup> The majority of female respondents were interested in undergoing orthodontic  
181 treatment. This is in line with previous research that suggests that women undergo more orthodontic  
182 treatment than men. The main motivation for women to do orthodontic treatment is for aesthetics.  
183 Women also have higher awareness of orthodontic treatment needs than men.<sup>21,22</sup>

184  
185 People with higher socioeconomic level has a high level of awareness to undergo orthodontic  
186 treatment. The majority of respondents with a high level of education are interested in undergoing  
187 orthodontic treatment. Education also affects the level of awareness of oral function so that the need  
188 for orthodontic treatment also increases.<sup>23</sup> Other studies state that the majority of people are motivated  
189 to undergo treatment if the cost of treatment is more affordable.<sup>24</sup>

190

191 **CONCLUSION**

192  
193 Majority of adults aged 35-50 years in greater Jakarta areas are interested to undergo  
194 orthodontic treatment as well as having high self-awareness of the purpose of orthodontic treatment.  
195 They are dissatisfied with the arrangement of their teeth and feel that irregular arrangement of the teeth  
196 is associated with a decrease in social attractiveness. The level of knowledge regarding orthodontic  
197 treatment among adults aged 35-50 years in greater Jakarta areas is poor.

198  
199 **CONFLICT OF INTEREST**

200  
201 There is no conflict of interest in this research. The respondents who took part in the study have  
202 read the explanation of the study, understood the purpose of the study and agree to participate on the  
203 study.

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