Research Article DOI: 10.62425/esbder.1432123

Anxiety in Fathers and Father-Infant Attachment

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ABSTRACT

Objective: This study was conducted to examine the factors associated with anxiety and father-infant attachment in prospective fathers and to determine the relationship between them.

Methods: The population of the descriptive and correlational study consisted of prospective fathers aged 18 years and older in Sakarya University Training and Research Hospital. A total of 106 prospective fathers who met the inclusion criteria were included in the sample. The data were collected face-to-face by distributing the forms to the prospective fathers using the personal information form, prenatal paternal attachment scale and trait anxiety scale.

Results: The level of prenatal paternal attachment is affected by the factors of educational status, economic status, feeling ready for fatherhood, planned pregnancy, the emotion felt when learning that he became a father, harmony with the spouse, the father's accompaniment to the controls, and the negative effect of the change in physical appearance during pregnancy ($p<.05$). A significant and positive relationship was found between the scores obtained from the time spent on attachment sub-dimension and the scores obtained from the attachment quality sub-dimension of the Prenatal Father Attachment Scale (PFAS) ($r=0.546$ $p<.05$). There is also a significant and positive relationship ($r=0.26$ $p<.05$) between the scores obtained from the State-Trait Anxiety Inventory (STAI) scale and the scores obtained from the sub-dimension of time spent on attachment in the PFAS.

Conclusion: Prenatal attachment process of expectant fathers may vary according to demographic characteristics. Having a desired pregnancy and feeling ready for fatherhood positively affect attachment. The level of anxiety perceived by expectant fathers increases the time spent on attachment.

Keywords: Father, anxiety, attachment, infant, pregnant

Received 05.02.2024
Accepted 17.03.2025
Publication Date 26.03.2025

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Cite this article: Kurtuluş, G., Yolcu, B., & Hamlacı Başkaya, Y. (2025). Anxiety in Fathers and Father-Infant Attachment. *Journal of Midwifery and Health Sciences, 8*(1), 51-58.

Introduction

Pregnancy is a physiological event in which every woman experiences cognitive, affective and behavioural changes with the transition to motherhood (Mazzeschi et al.,2015). One of the most important developments in this process is the sense of attachment with her baby. In the most basic sense, attachment is defined as the bond that an individual experiences with another individual whom he/she finds important for himself/herself and with whom he/she feels strong. This process, the basic building blocks of which are laid in infancy, affects all social relations, self-confidence, self-control, and communication skills of the individual throughout his/her life (Nacar, & Gökkaya, 2019; Başdaş, 2022). From the moment a mother-to-be learns about her pregnancy, she starts the prenatal attachment process with her baby, and the safe realisation of this process is very important for the development of the baby. The adaptation process of women to motherhood is easier than men due to psychological, physical and hormonal changes (Mutlu et al., 2015). Acquisition of the father role in men is a dynamic process that starts with learning that the wife is pregnant and continues for 3 years after birth. The acquisition of the role may vary depending on cultural, social and economic factors (Döner et al., 2021).

Successful father-infant attachment is at least as important as mother-infant attachment, and ensures healthier cognitive, social and emotional development in infants (Telli & Özkan, 2016). Enables babies to show higher levels of motor, language and personal/social development. Provides the basis for better infant development (Rempel et al., 2017). Many obstetric and other factors seen during pregnancy have been proven to affect the attachment between mother and baby. However, when the factors affecting father and infant attachment in this process are examined, it has been observed that the harmony of the fathers with their spouses, participation in pregnancy controls, participation in birth preparation training with their spouses affect father-infant attachment (Türkmen & Güler, 2022; Dagla et al., 2023). With the participation in the care of the baby in the postnatal process, fathers move from an abstract dimension to a concrete dimension and their attachment levels to their babies increase.

Expectant fathers may react differently when they learn that their wives are pregnant (Döner et al., 2021). Feeling financially responsible is a situation seen in all prospective fathers. Accordingly, the anxiety level of fathers may be affected. The feeling of anxiety experienced may be reflected in the antenatal attachment process that expectant fathers experience with their babies (Brandao et al., 2019; Philpott et al., 2017). During pregnancy, expectant fathers usually focus on meeting the needs of their wives and their babies (Davenport et al., 2022). In this process, evaluating the anxiety levels of fathers and minimising them as much as possible has an important role in ensuring a secure father-baby attachment. When the literature is examined, in a meta-analysis examining anxiety in fathers in the prenatal and postnatal period, it was reported that the transition period to parenthood makes fathers very vulnerable in terms of anxiety (Leiferman et al., 2021). In a study conducted by Beesley et al., it was reported that there was no relationship between fathers' anxiety and depression levels and their attachment status (Beesley, 2017). In another study examining the effect of attachment training on father-infant attachment and parental anxiety, it was reported that the training increased attachment and decreased anxiety (Setodeh et al., 2017). In this direction, it was aimed to reveal the relationship between anxiety in fathers and father-infant attachment with the results of our study.

Methods

Aim and Type of Study

This descriptive correlational study was conducted to examine the factors associated with anxiety and father-infant attachment in prospective fathers and to determine the relationship between them.

Population and Sample of the Study

The population of the study consisted of expectant fathers aged 18 years and over who came to the healthy pregnancy outpatient clinic of Sakarya University Training and Research Hospital. The sample of the study consisted of 106 prospective fathers who could be reached between the data collection dates, who came to the outpatient clinic examination with their spouses, who accepted to participate in the study and met the inclusion criteria. After the data collection process, the power of the sample was found to be 94.2% in the power analysis performed using G Power 3.1.9.7 software.

Inclusion Criteria

- His wife has not yet given birth,
- 18 years and older,
- Expectant fathers who volunteered to participate in the study were included in the study,
- Partners of women with a pregnancy over 20 weeks gestation.

Exclusion Criteria

- Fathers who could not speak Turkish or had communication disorders were excluded from the study,
- Partners of women with a high-risk pregnancy.

Data Collection Instruments

The study data were collected through Personal Information Form, Prenatal Father Attachment Scale (PFAS), and State-Trait Anxiety Inventory (STAI).

Personal Information Form: The descriptive information form consists of 20 questions. The form includes questions about the demographic information of the participants, obstetric characteristics and the feelings of the individual when he learnt that he was a father.

Prenatal Father Attachment Scale (PFAS): Prenatal Father Attachment Scale is a scale developed by Condon (1993) (Condon, 1993). Turkish validity and reliability study of the scale was conducted by Benli and Aksoy (2021). The scale consists of a total of 16 questions in 5-point Likert type. It has 2 sub-dimensions, namely "quality of attachment" and "time spent on attachment" sub-dimensions. There are items 2, 3, 7, 9, 11, 12, 15, 16 in the quality of attachment sub-dimension and items 1, 4, 5, 6, 8, 10, 13, 14 in the time spent on attachment sub-dimension. There are 9 reverse items in the scale, including items 1, 3, 5, 6, 7, 8, 12, 13, 15. Reverse items are reversed and scored. The minimum score that can be obtained from the scale is 16 and the maximum score is 80. The higher the score obtained from the scale, the higher the prenatal attachment is accepted (Benli & Aksoy, 2021). The cronbach alpha value of the valıdıty and reliabılity study of the scale was found to be 0.82. In this study, the cronbach alpha coefficient of the scale was determined as 0.75.

State- Trait Anxiety Inventory (STAI): The scale developed by Spielberger et al. (1970) consists of 20 items. The State-Trait Anxiety Inventory (STAI) aims to measure the continuity of the anxiety that a person tends to experience. The validity and reliability of the scale in Türkiye was carried out by Öner and Le Compte (1983) (Öner & Le Compte, 1983). The inventory has two separate scales, State-Trait Anxiety and Trait Anxiety, each with 20 items. The scale is a Likert-type four-point scale ranging from "Not at all" to "Completely". A high score indicates a high level of anxiety and a low score indicates a low level of anxiety. There are 7 reverse items in the scale, namely items 21, 26, 27, 30, 33, 36 and 39. The minimum score that can be obtained from the scale is 20 and the maximum score is 80. Cronbach's Alpha coefficient ranged from 0.94 to 0.96 for the SAI in the validity and reliability study of the inventory (Oner and Le Compte, 1983). In the study, the cronbach alpha coefficient of the scale was determined as 0.88.

Data Collection

The purpose of the study was explained to the prospective fathers who met the research criteria by the researcher while they were in the outpatient clinic examination waiting line, they were informed that all data would be protected safely and their consent was obtained. Then, the data were collected by the researcher using face-to-face interview technique.

Analysing the Data

The data obtained in the study were analysed using Statistical Package for Social Sciences (IBM SPSS Corp., Armonk, NY, USA) for Windows 25.0 software. Descriptive statistics such as frequency, percentage values, mean and standard deviation were used to interpret the data obtained. The conformity of the data to normal distribution was evaluated by Kolmogorov-Smirnov test. As a result of the Kolmogorov-Smirnov test, it was determined that the data showed normal distribution. Parametric tests were applied with the scales used. Independent sample t test was performed to test whether the scores obtained from two unrelated samples of our quantitative variables differed significantly from each other. ANOVA (F) test was applied to test whether the mean scores of more than two unrelated samples differed significantly from each other, and Bonferroni test was applied to see from which groups the difference originated. "Reliability Analysis" was performed to test the reliability of the scales. Pearson correlation analysis was used to evaluate the relationship between the two scales. In the study, *p* values below 0.05 were considered significant.

Ethical Approach of the Research

The necessary written permission was obtained from Sakarya University Training and Research Hospital and ethical approval was obtained from Sakarya University Non-Interventional Clinical Research Ethics Committee (letter: E-71522473-050.01.04-121150-72-Date: 04.04.2022). At the beginning, each father was informed about the purpose of the study and written informed consent was obtained. The consent form included information that the participants could voluntarily participate in the study without any pressure or coercion, that they had the right to refuse to participate in the study, and that they could leave the study at any time. The Declaration of Helsinki was followed at all stages of this study.

Results

The ages of the prospective fathers in the study group ranged between 22-48 years and the mean age was 34.53±5.77 years. The duration of marriage of the prospective fathers ranged between 1-26 years with a mean of 6.27±3.91 years. The scores of the individuals obtained from the Prenatal Father Attachment Scale ranged between 47-78 points, with an average of 64.08±6.01 points. In the study, it was seen that there was a statistically significant difference in the scores obtained from the prenatal paternal attachment scale according to the parameters of the participants' educational status, economic status, feeling ready for fatherhood, planned pregnancy, the emotion felt when they learnt that they were fathers, harmony with the spouse, the father's accompaniment to the controls, and the negative effect of pregnancy on the change in physical appearance (p<.05). The attachment scores of the fathers who had an education level above university, had a high economic status, felt ready for fatherhood, participated in the controls, were compatible with their partner, and were positively affected by the physical changes in pregnancy were significantly higher.

The distribution of the demographic Characteristics of the prospective fathers and the distribution of the mean scores obtained from the Prenatal Father Attachment Scale related to these characteristics are given in Table 1.

The scores obtained by the prospective fathers from the STAI ranged between 32-59 points, with a mean score of 41.18±4.61 points. There was no statistically significant difference between all demographic characteristics of the participants and the scores they obtained from the STAI (p<.05). The distribution of the mean scores obtained from the STAI according to the demographic characteristics of the prospective fathers is given in Table 2.

In the study, a statistically significant and positive (r=0.546 p<.05) relationship was found between the scores obtained by the participants from the time spent on attachment sub-dimension of the Prenatal Father Attachment Scale and the scores obtained from the attachment quality sub-dimension. As the time spent on attachment increases, the quality of attachment also increases. A statistically significant and positive (r=0.26 p<.05) relationship was found between the scores of the prospective fathers from the STAI scale and the scores from the time spent on attachment sub-dimension of the Prenatal Father Attachment Scale. As the anxiety level of fathers increases, the time spent for attachment also increases. The relationship between the scores obtained from the prenatal father attachment scale and the scores obtained from the STAI scale by the prospective fathers participating in the study is given in Table 3.

Discussion

Secure attachment is a highly influential factor for the baby's life both in infancy and later in life. In the literature, there are many studies on the benefits of mother and infant attachment Chambers (2017), but there are not enough studies on the attachment process that fathers experience with their infants. In this study, the relationship between fathers' anxiety and father-infant attachment and related variables were examined.

The attachment process, the basis of which is realized in the intrauterine period, is very important for the mental and emotional development of the baby and is highly affected by demographic factors (Işık & Çetişli, 2020; Rempel et al.,2017). In our study, it was observed that the education level and economic status of the prospective fathers had a relationship with attachment. In the study conducted by Çağan et al. (2021), it was observed that the attachment levels of prospective fathers with a bachelor's degree and above were higher (Çağan et al., 2021). In the study conducted by Kılavuz et al. (2022), it was observed that the attachment levels of prospective fathers with higher economic status were higher (Klavuz et al., 2022). Similarly, in Kartal and Erişen's (2020) study, it was observed that fathers with higher income status had higher attachment scores (Kartal & Erişen, 2020). In line with the literature and our study, it can be said that income status and education level are factors that can affect a person's perspective on life, perception of fatherhood and desire to have children. Considering that insufficient income makes the prospective father economically anxious, it can be said that this anxiety is reflected in attachment and negatively affects attachment.

For a male individual, feeling ready for fatherhood, wanting pregnancy, marital satisfaction are important in terms of participating in the pregnancy process and the care of the baby in the future and adopting the roles of taking responsibility (Hall et al., 2014). In our study, it was observed that the attachment levels of prospective fathers who thought that they were ready for fatherhood, whose pregnancy was planned, who were happy when they heard the news of pregnancy, who were positively affected by their partner's physical appearance and who accompanied them to routine controls were significantly higher. In the study conducted by Demirçin et al. (2019), it was reported that the attachment levels of individuals who felt ready for fatherhood were higher (Demirçin et al., 2019).

Table 1.
The Relationship Between the Scores of the Participants on the Prenatal Father Attachment Scale and Some Variables

Demographic data		n	Prenatal Father Attachment Scale					
			Attachment Quality Subscale		Time Spent on Attachment Subscale		Total Score	
			$\overline{X}$ ±SD	Test and p	$\overline{X}$ ±SD	Test and p	$\overline{X}$ ±SD	Test and p
Age [a]	30 and under (1)	31	36.41±2.36	f=1.26 *p*=.28	29.45±4.09	f=1.96 *p*=.14	65.87±5.94	f=1.96 *p*=.14
	31-40 (2)	60	35.43±3.12		27.90±3.68		63.33±5.85	
	41 and higher (3)	15	35.93±2.40		27.46±4.59		63.40±6.42	
Education level [a]	Secondary school and under (1)	20	33.85±3.70	**f=8.39 *p*<.05* (1-3)**	26.80±4.64	**f=4.65 *p*<.05* (1-3)**	60.65±6.71	**f=7.64 *p*<.05* (1-3)**
	High School (2)	30	35.50±3.19		27.30±3.64		62.80±6.06	
	University and higher (3)	56	36.64±1.76		29.35±3.64		66.00±5.01	
Working status [b]	Working	101	36.00±2.55	t=3.56 *p*=.08	28.25±3.83	t=-0.40 *p*=.68	64.25±5.76	t= 1.33 *p*= .18
	Not working	5	31.60±5.02		29.00±6.89		60.60±10.08	
Economic status[a]	Low (1)	5	31.80±5.11	**f=6.82 *p*<.05* (1-2/1-3)**	27.80±7.79	f=1.79 *p*=.17	59.60±10.40	**f=3.36 *p*<.05* (1-3)**
	Medium (2)	88	35.84±2.55		28.03±3.56		63.87±5.41	
	High (3)	13	37.00±2.48		3.23±4.60		67.23±6.94	
Marriage duration [a]	5 years and under (1)	50	35.94±2.78	f=0.12 *p*=.87	29.10±3.73	f=2.01 *p*=.13	65.04±5.86	f=1.21 *p*=.30
	6-10 years (2)	46	35.67±2.97		27.63±3.98		63.30±5.97	
	11 years and higher (3)	10	35.60±2.71		27.30±4.69		62.90±6.80	
Existence of the living child [b]	Yes (1)	51	35.82±3.21	t=0.10 *p*=.22	28.01±4.04	t=-0.67 *p*=.74	63.84±6.26	t= 0.69 *p*=-.39
	None (2)	55	35.76±2.46		28.54±3.92		64.30±5.82	
Baby's gender [a]	Girl (1)	39	35.66±3.21	f=0.81 *p*=.92	28.10±4.01	f=0.34 *p*=.71	63.76±6.34	f=0.15 *p*=.85
	Boy (2)	52	35.82±2.66		28.59±3.96		64.42±5.81	
	Unknown (3)	15	36.00±2.83		27.73±4.09		63.73±6.16	
Feeling ready for fatherhood [b]	Yes	100	36.13±2.33	**t=5.70 *p*<.05***	28.46±3.91	t=1.79 *p*=.71	64.59±5.56	**t= 2.85 *p*<.05***
	No	6	30.16±4.57		25.50±4.32		55.66±7.52	
Planned pregnancy status [b]	Planned	95	35.98±2.61	**t=2.13 *p*<.05***	28.48±3.78	t=1.46 *p*=.11	64.47±5.52	t= 1.98 *p*= .05
	Unplanned	11	34.09±4.06		26.63±5.29		60.72±8.91	
The feeling when you realise you are a father [b]	Nothing	19	34.47±3.79	**t=-2.28 *p*<.05***	26.52±3.51	t=-2.17 *p*=.50	61.00±6.49	**t=-2.33 *p*<.05***
	Happiness. joy	87	36.08±2.52		28.67±3.98		64.75±5.72	
Harmony with the partner[a]	Always compatible (1)	31	36.58±3.21	f=1.97 *p*=.14	30.54±3.74	**f=8.29 *p*<.05* (1-2/1-3)**	67.12±5.86	**f=6.54 *p*<.05* (1-2)**
	Generally compatible (2)	70	35.52±2.61		27.44±3.56		62.97±5.45	
	Incompatible (3)	5	34.60±2.88		26.20±5.76		60.80±8.46	
Father's accompaniment to the controls [b]	Accompaniment	87	36.21±2.43	**t=3.47 *p*<.05***	28.98±3.82	t=4.14 *p*=.27	65.20±5.57	**t= 4.58 *p*<.05***
	I didn't accompany	19	33.84±3.71		25.10±3.07		58.94±5.34	
Negative effects of changes in physical appearance during pregnancy [b]	Did not affect	43	34.32±3.48	**t=-4.84 *p*<.05***	26.76±4.04	**t=-3.35 *p*<.05***	61.09±6.44	**t=-4.62 *p*<.05***
	I've become interested in him.	63	36.79±1.70		29.33±3.60		66.12±4.76	

**p<.05* [a]*One Way ANOVA test* [b]*Independent samples t test*

Table 2.
Comparison of (STAI) Scores According to Socio-Demographic Characteristics of the Participants

Demographic Data		n	STAI-II	
			$\overline{X}$ ±SD	test and p
Age [a]	30 and under (1)	31	41.35±4.65	f=0.14
	31-40 (2)	60	41.25±4.56	*p*=.86
	41 and higher (3)	15	40.60±4.98	
Education level[a]	Secondary school and under (1)	20	39.80±4.62	f=1.41
	High School (2)	30	41.00±4.69	*p*=.24
	University and higher (3)	56	41.78±4.52	
Working status[b]	Working	101	64.25±5.76	t=0.29
	Not working	5	60.60±10.08	*p*=.64
Economic status[a]	Low (1)	5	41.20±3.34	f=0.31
	Medium (2)	88	41.32±4.83	*p*=.72
	High (3)	13	40.23±3.39	
Marriage duration[a]	5 years and under (1)	50	41.42±5.11	f=0.12
	6-10 years (2)	46	40.95±3.96	*p*=.88
	11 years and higher (3)	10	41.10±5.17	
Existence of the living child[b]	Yes (1)	51	41.05±4.80	t=-0.27
	None (2)	55	41.30±4.46	*p*=.95
Baby's gender[a]	Girl (1)	39	40.61±3.71	f=1.39
	Boy (2)	52	41.11±5.26	*p*=.25
	Unknown (3)	15	42.93±4.09	
Feeling ready for fatherhood[b]	Yes	100	41.30±4.64	t=1.01
	No	6	39.33±3.88	*p*=.68
Planned pregnancy status[b]	Planned	95	41.45±4.63	t=1.74
	Unplanned	11	38.90±3.83	*p*=.62
The feeling when you realise you are a father[b]	Nothing	19	42.21±6.08	t=1.06
	Happiness, joy	87	40.96±4.23	*p*=.14
Harmony with the partner[a]	Always compatible (1)	31	41.67±4.20	f=0.49
	Generally compatible (2)	70	40.88±4.89	*p*=.61
	Incompatible (3)	5	42.40±2.70	
Father's accompaniment to the controls [b]	Accompaniment	87	41.36±4.73	t=0.85
	I didn't accompany	19	40.36±3.98	*p*=.51
Negative effects of changes in physical appearance during pregnancy[b]	Did not affect	43	41.62±4.91	t=0.79
	I've become interested in him.	63	40.88±4.40	*p*=.43

[a]*One Way ANOVA test* [b]*Independent samples t test*

In the study conducted by Sürücüler (2019), it was observed that prospective fathers who had a very good relationship with their spouses had higher attachment scores (Sürücüler, 2019). Again, in Tanaka et al. (2023) study, it was observed that the father's negative relationship with his spouse reflected negatively on father-infant attachment (Tanaka et al., 2023). In another study, it was reported that relationships with weak partner bonding reflected negatively on the quality of father-infant attachment (Wynter et al., 2016). In a study examining the differences between mothers and fathers in parent-infant attachment, it was reported that the perception of marital quality was a more important factor for attachment in fathers compared to mothers (Luz et al., 2017). Positive reactions to the news of pregnancy may be realized thanks to the planned pregnancy, and accordingly, attachment is likely to be experienced more in an expected pregnancy. Expectant fathers who participated in the controls with their wives may have higher attachment levels because they had the opportunity to spend more time with their infants and take responsibility for them. It is thought that exhibiting a positive attitude towards the physiological changes of the spouse is due to the fact that it occurs in parallel with the harmony between the spouses, and accordingly, it can be said that attachment levels will increase. A large number of studies have demonstrated the important role that a positive relationship between couples plays in the bonding of future generations.

Table3.
Relationship between Prenatal Father Attachment Scale and STAI Scale Total Scores (n=106)

		Attachment Quality Subscale	Time Spent on Attachment Subscale	Prenatal Father Attachment Scale
Time Spent on Attachment Subscale	r p	0.546 **<.05***	1	0.264 **<.05***
STAI	r p	0.02 .87	0.26 **<.05***	0.182 .062

**=p<0.05; r= Pearson Correlation Test*

In the study, there was no relationship between total scores of paternal attachment and total scores of trait anxiety, but as the level of trait anxiety increased, the dimension of time spent on attachment increased. As the time spent on attachment increased, the quality dimension of attachment also increased. The fact that expectant fathers spend more time with their babies facilitates the feeling of positive emotions and positively affects the quality of attachment. In the study conducted by Çelik Yaşar (2020) on the effects of adult attachment type, anxiety level, alexithymia on prenatal and postnatal father-infant attachment in expectant fathers, it was seen that the anxiety level of expectant fathers had no effect on prenatal attachment (Çelik Yaşar, 2020). Due to the increase in the responsibilities of expectant fathers during pregnancy, the issue that needs to be focused more emerges. Accordingly, it can be said that the anxiety level of expectant fathers

increases and this situation negatively affects attachment.

Study Limitations

The study has various limitations. The study sample was cross-sectional and included only the spouses of pregnant women who visited the obstetrics and gynaecology outpatient clinic of a hospital. Therefore, it cannot be generalised to all prospective fathers.

Conclusion and Recommendations

Expectant fathers are not as close to the physical evidence that the foetus is an individual as expectant mothers, so they have more difficulty in accepting the reality of pregnancy compared to mothers. The results of the study show that the prenatal attachment process of expectant fathers may vary according to demographic characteristics. However, it was observed that having a desired pregnancy and feeling ready for fatherhood positively affected attachment. The level of anxiety perceived by expectant fathers also increases the time spent on attachment. Practices such as trainings for fathers during pregnancy, including fathers in pregnancy classes and controls can enable fathers to participate more in the prenatal period and accordingly, the basis of attachment can be realised in the prenatal period. In the literature, more studies are needed to improve father-infant attachment.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Sakarya University (Date: 04.04.2022, Number: E-71522473-050.01.04-121150-72). All steps of the study were conducted in accordance with the Declaration of Helsinki.

Informed Consent: Verbal consent was obtained from each patient.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – YHB-GK; Design – YHB-GK; Supervision - YHB; Resources - GK; Materials - GK; Data Collection and/or Processing - GK; Analysis and/or Interpretation – YHB-BY; Literature Search – BY; Writing Manuscript – YHB-BY; Critical Review – YHB-BY

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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