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Research Article

# Knowledge, Attitudes, and Practice of Pediatric Nurses Regarding Asthmatic Patient - Care in Gaza

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## Abstract

**Background:** Bronchial asthma is the most cause of hospitalization among children particularly before 6 years. This study aimed to assess the level of nurses' knowledge, attitudes, and practices toward bronchial asthma disease in pediatric departments in Gaza strip hospitals.

**Methods:** A descriptive-analytic cross-section design was conducted among one hundred sixty-nine nurses who work in different pediatric departments across the Gaza strip Pediatric hospitals. A structured self-administered questionnaire was distributed among nurses, 90.53% were responded from both sexes. Likert scale (three points) questionnaire was designed to measure the knowledge, attitude, and practices of nurses. Data were analyzed by Stata software version 14.

**Results:** The study showed that the majority of the sample were females (55.56%), and two-thirds of the nurses were married (66.67%) with a mean age of 33 (SD = 8) years which ranged from 21 to 55. Furthermore, almost half of nurses had five to ten years of experience (43.14%). The study showed more than two-third of nurses have good knowledge. Remarkably, about half of nurses (47.06%) did not know that asthma complications may lead to death. Regarding attitude, 41.7% of nurses have a negative attitude towards asthmatic patients, but 36.8% of them have a positive attitude and 24.56% have a fair level of attitude, Moreover, 69.1%of nurses have a good practice and 17.2% of them have a fair level of practice, but 13.2% have poor practice.

**Conclusion:** The study concluded that the knowledge and practices of most nurses were satisfactory while only less than half of the nurses had positive attitudes towards nursing care of asthmatic patients. However, there was no statistically significant relationship between the knowledge, attitudes, and practices of the nurses with other independent variables.

**Keywords:** Pediatric Nursing; Asthma; Knowledge; Attitudes; Practice

## Introduction

Globally, asthma is ranked as the 16th among the leading causes of years lived with disability and 28th among the leading causes of burden of disease, as measured by disability-adjusted life years. Around 300 million people have asthma worldwide, and it is likely that by 2025 a few further 100 million may be affected [1].

In the Middle East, asthma prevalence is reported to be lower than in "developed" countries (ranges 5 - 23%) [2]. In Palestine,

physician-diagnosed asthma prevalence was 3.8%, and the prevalence of recent wheezing was 8.9%, the lowest 12-months wheezing prevalence rate was seen in rural Palestinian (5.5%) [3] and the highest in the desert population of Saudi Arabia (23%) [4].

Patterns in asthma incidence and prevalence differ between children and adults. It is well-known that asthma often begins in childhood but can occur at any time throughout life, with some developing asthma for the first time as adults. While asthma incidence and prevalence are higher in children, asthma-related healthcare use and mortality are higher in adults. Interestingly, incidence and prevalence of asthma differs by sex across the lifespan. Pre-pubertal boys have a higher asthma incidence, prevalence, and hospitalization rate than girls of the same age, but this trend reverses during adolescence [5].

In an observational multicenter study, which was conducted in the pulmonology and pediatric wards in Marseille. A total of 42.5% reported previous training in inhalation device technique. When evaluating theoretical knowledge, they found a mean of 54% correct answers. Regarding practical skills, they found a mean of 1.12 failed steps out of 7. In both, attending physicians were better than residents and nurses [6]. In another survey in France, the results showed that many physicians and nurses lack knowledge and use inappropriate practices in asthmatic patient's care [7].

The most common reasons for uncontrolled asthma are nonadherence to treatment and poor knowledge and skills in disease management. Inadequate education about the prevention of exposure to asthma triggers, the inability to prevent acute attacks and ineffective use of inhalers are the common reasons for uncontrolled asthma. Asthma education is a vital component in disease control and self- management. Patient education makes management of the disease cost effective and comprehensive [8].

Up to the best of our knowledge, the information about nurses' knowledge and practices regarding asthma management still not researched. This study is the first study conducted in Gaza Strip to assess Nurses' knowledge, attitude and practice regarding the care of asthmatic patient in Gaza.

## Methods

### Study design

A descriptive- analytic cross-section design was used in this study from June 2020 to November 2020. This study was conducted in all pediatric department in all Gaza hospitals which includes Pediatric departments (Pediatric Mubarak Hospital, Kamal Adwan Hospital, El Dorra Pediatric Hospita, Al Nasr Pediatrics' Hospital, Al Rantisi Pediatrics' Hospital and Al- Aqsa Martyrs Hospital). The study population was all nurses who care with asthmatic child patients in Gaza strip hospitals. The sample for this study was census consisted of 169 nurses working in the pediatric departments. And all were selected according to eligibility criteria.

### Eligibility criteria

All staff nurses who work in pediatric departments in hospitals were included. However, all nurses who work for temporary work period, all internships student, and all volunteer nurses who they work as volunteers in pediatric departments were excluded.

### Data collection and study instrument

Data were collected by structured self-administered questionnaire to assess nurses' knowledge, attitude and practice. The questionnaire consisted of four domains, the first was to assess characteristics of the nurses such as age, gender, marital status, qualification, years of experience…), then three domains, in which each one was to assess separately the domains of knowledge, attitude, and practice regarding bronchial asthma and nursing care.

### Ethical and administrative considerations

Prior to the commencement of the study, ethical compliance was obtained to protect participants and maintain their confidentiality. Ethical approval from the Palestinian health research council was gained (No. PHRC/HC/780/20). As well, approval from the hospitals' administration was taken. Informed consent was taken from participants.

### Data management statistical analysis

The researchers used Stata version 14 statistical software for data analysis. Data entry was performed by the researcher on daily basis. The quality of the data was verified and any invalid questionnaires were refilled. Upon completing the process, 5% of the data were re-filled to ensure the correct entry procedure and to decrease error in the entry. Before analysis, the data were coded, where required, and were cleaned for any errors or illogic values, then descriptive analysis in the form of measures for central tendency as means; and measures of variability as for standard deviation and variances was conducted for normally distributed

variables. Categorized data were tabulated according to frequency distribution and percentage. Relationship analysis between dependent and independent categorical variables was conducted by using the cross-tabulation method and chi-squared test. However, a t-test with two independent categorical variables was analyzed for a continuous dependent variable.

## Results and Discussion

### Descriptive statistics

One hundred sixty-nine questionnaires were distributed among nurses from sex different pediatric departments across Gaza strip Hospitals. One hundred fifty-three were respondent to the questionnaire with a response rate of 90.53%. The mean age was 32.88 with a standard deviation of 8.39 and ranged from 21 to 55 years. The majority of nurses (43.14%) had only five to ten years' experience, 22.22% of them had only 5 years of experience, 15.69% had more 10 - 15 years of experience and 18.69% had more 15 years of experience. More than half were females (55.56%, n = 85), and two third of the nurses were married (66.67%) and only 30.72% unmarried. Most of nurses had a bachelor's degree with range 62.09%, about one third of them (30.72%) had diploma degree and 5.88% had master's degree. Most of nurses were graduated from Al-Azhar University (39.87%), 8.50% were graduated of AL-Islamic University, 26.14% of them were graduated of Palestine University and only 4.58% were graduated of Al Quds University. Majority of participants work in Pediatric Mubarak Hospital (20.26%), 15.69% work in Al Rantisi Pediatrics' Hospital, 9.15% work in Al-Aqsa Martyrs Hospital, 17.65% work in El Dorra Pediatric Hospital and 19.16% work in AL-Naser Pediatrics' Hospital (Table 1).

| Categorical Variable | N | Percent |
|---|---|---|
| Hospital name | | |
| Pediatric Mubarak Hospital | 31 | 20.26 |
| El Dorra Pediatric Hospital | 27 | 17.5 |
| Kamal Adwan Hospital | 27 | 17.65 |
| Al Rantisi Pediatrics' Hospital | 14 | 15.69 |
| Al Nasr Pediatrics' Hospital | 30 | 19.61 |
| Hospital | 24 | 9.15 |
| Experience years groups | | |
| 1 - 5 | 66 | 22.22 |
| > 5 - 10 | 34 | 43.14 |
| > 10 - 15 | 24 | 15.69 |
| > 15 | 26 | 18.96 |
| Gender | | |
| Male | 68 | 44.44 |
| Female | 85 | 55.56 |
| Marital status | | |
| Married | 102 | 66.67 |
| Unmarried | 47 | 30.72 |
| Others | 4 | 2.61 |
| Level of education | | |
| Diploma | 47 | 30.72 |
| Bachelor | 95 | 62.09 |
| Master | 9 | 5.88 |
| Others | 2 | 1.31 |
| University of graduation | | |
| Al-Azhar University | 61 | 39.87 |
| Al Islamic university | 13 | 8.50 |
| Palestine university | 40 | 26.14 |
| Al-Quds University | 7 | 4.58 |
| University College of Applied Sciences | 25 | 16.34 |
| Others | 7 | 4.58 |

| Continuous variable | Mean | SD | Range | |
|---|---|---|---|---|
| Age in years | 32.88 | 8.39 | 21 | 55 |

**Table 1:** Participants' characteristics (n = 153).

### Level of knowledge among nurses regarding care of pediatric asthmatic patient

Tables 2 describes that the level of knowledge among participated nurses in this study was 74.37% which consider good. However, still need for improvement especially in the following items: 1) Are Asthmatic attacks triggered by physical inactivity? 2) Does asthma illness not have serious complications that can lead the patient to death in children? 3) Is walking the referable exercise for asthmatic patient? 4) Can Aspirin cause asthmatic attack? as all reported a level of knowledge below 50%.

Knowledge of nurses about bronchial asthma disease and knowing that it is a chronic disease were the most frequent items to be applied and ranked as first one with a relative mean of 94.12% and standard deviation of 0.24. Knowing that asthma attack vary in severity and frequency from person to person was also

in the first rank with the same relative mean 94.12% but with different standard deviation of 0.94 and only 5.88% answered incorrect answers; followed by knowing the normal respiratory rate per minute 16 - 20 in the 4th rank (93.47%) with standard deviation of 0.93% and only 6.53% answered incorrect answer. Yet, 84.31% of nurses were knowing that asthma disease affects social aspects of the patient's life and asthmatic patient should take plenty of warm water to prevent inflammation of the airway with similar standard deviation of 0.84 which placed in the fifth rank.

However, 81.05% were knowing that cyanosis not red discoloration of skin which applied in the seventh rank with standard deviation of (0.81). Whereas only 25.50% of nurses were knowing asthma disease cannot be caused by bronchitis and sinusitis. And 73.86% of nurses knowing that asthma characterized by Wheezing which placed in the ninth rank. followed by 71.24% of nurses knowing that Spirometry is the main test use to diagnosis asthma disease with standard deviation of (0.71) and 28.76% didn't know that. Unfortunately, only 56.86% of nurses knowing that asthmatic attacks triggered by physical inactivity with standard deviation of (0.57). Moreover, the items of knowing that asthma disease does not have serious complications that can lead the patient to death in children and walking is referable exercise for asthmatic patient have the same rang (47.06%) with same standard deviation of (0.47) which were placed in the 12th rank but unfortunately 52.94% didn't know that. Finally, knowing that aspirin causes asthmatic attack was the less frequent item to be applied and ranked as 14th rank, but more than half of nurses (54.90%) not know that aspirin causes asthmatic attack.

This result inconsistent with another study conducted in Sudan (Abdallah, 2018 #37) which revealed that majority of nurses were females (63.8%) with age ranged between 20 to 25 years (56.4%), the educational level was Bachalor degree (64%) and the level of experience ranged between 1 - 5 (85.1%). Based on findings of this study, we notice that (39.87%) of participants were graduated from Al-Azher University and most of them work in Pediatric Mubarak and AL Naser Pediatric's Hospitals.

| # | Item | Weighted mean | SD | Rank | Correct freq. | % | Incorrect freq. | % |
|---|---|---|---|---|---|---|---|---|
| | Do you know bronchial asthma disease? | 94.12 | 0.24 | 1 | 144 | 94.12 | 9 | 5.88 |
| | Is bronchial asthma a chronic disease? | 94.12 | 0.24 | 1 | 144 | 94.12 | 9 | 5.88 |
| | Are Asthmatic attacks triggered by physical inactivity? | 56.86 | 0.57 | 11 | 87 | 56.86 | 66 | 43.14 |
| | Is Asthma not characterized by Wheezing? | 73.86 | 0.74 | 9 | 113 | 73.86 | 40 | 26.14 |
| | Spirometry is the main test use to diagnosis asthma disease? | 71.24 | 0.71 | 10 | 109 | 71.24 | 44 | 28.76 |
| | Can the asthma disease affect social aspects of the patient's life? | 84.31 | 0.84 | 5 | 129 | 84.31373 | 24 | 15.69 |
| | Does asthma illness does not have serious complications that can lead the patient to death in children? | 47.06 | 0.47 | 12 | 72 | 47.06 | 81 | 52.94 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Asthma disease cannot be caused by bronchitis and sinusitis? | 74.51 | 0.75 | 8 | 114 | 74.51 | 39 | 25.50 |
| | Is walking the referable exercise for asthmatic patient? | 47.06 | 0.47 | 12 | 72 | 47.06 | 81 | 52.94 |
| | Is asthmatic patient should take plenty of warm water to prevent inflammation of the airway? | 84.31 | 0.84 | 5 | 129 | 84.31 | 24 | 15.68627 |
| | Asthma attack vary in severity and frequency from person to person? | 94.12 | 0.94 | 1 | 144 | 94.12 | 9 | 5.88 |
| | Is cyanosis red discoloration of skin? | 81.05 | 0.81 | 7 | 124 | 81.04 | 29 | 18.95 |
| | Can Aspirin cause asthmatic attack? | 45.1 | 0.45 | 14 | 69 | 45.10 | 84 | 54.90 |
| | Is the normal respiratory rate per minute 16 - 20? | 93.46 | 0.93 | 4 | 143 | 93.46 | 10 | 6.53 |
| | Total | 74.37 | 0.142 | - | 1593 | 74.37 | 549 | 25.631 |

**Table 2:** Level of knowledge among nurses regarding care of pediatric asthmatic patient (n = 153).

### Relationship between level of knowledge regarding asthmatic patient care and nurses' characteristics

In regard to the relationship between level of knowledge regarding care of pediatric asthmatic patient and nurses' characteristics, the only relation was found between Hospitals. This may be related to nature of hospital and the level of in-service education efforts done upon improve knowledge or the robust knowledge background of nurses themselves. All other variables were unable to have any relationship between level of knowledge and nurses' characteristics.

| Categorical Variable | Incorrect (n)% | Correct (n)% | $X^2$ | P-value |
|---|---|---|---|---|
| Hospital name | | | | |
| Pediatric Mubarak Hospital. | 9(29.03) | 22(70.97) | 13.3322 | 0.020* |
| Kamal Adwan Hospital | 3(11.11) | 24(88.89) | | |
| El Dorra pediatric Hospital | 2(7.41) | 25(92.59) | | |
| Al Rantisi pediatrics' Hospital | 1(7.14) | 13(92.86) | | |
| Al Nasr pediatrics' Hospital | 9(30.00) | 21(70.00) | | |
| Al- Aqsa Martyrs Hospital | 1(4.17) | 23(95.83) | | |
| Experience years groups | | | | |

| | | | | |
|---|---|---|---|---|
| 1 - 5 | 8(23.53) | 26(76.47) | 4.5786 | 0.205 |
| > 5 - 10 | 6(9.09) | 60(90.91) | | |
| > 10 - 15 | 5(20.83) | 19(79.17) | | |
| > 15 | 6(20.69) | 23(79.31) | | |
| Gender | | | | |
| Male | 15(22.06) | 53(77.94) | 2.293 | 0.087 |
| Female | 10(11.76) | 75(88.24) | | |
| Marital status | | | | |
| Married | 5(10.64) | 42(89.36) | 1.7276 | 0.422 |
| Unmarried | 19(18.63) | 83(81.37) | | |
| Others | 1(25.00) | 3(75.00) | | |
| Level of education | | | | |
| Diploma | 11(11.58) | 84(88.42) | 5.1765 | 0.159 |
| Bachelor | 11(23.40) | 36(76.60) | | |
| Master | 2(22.22) | 7(77.78) | | |
| Others | 1(50.00) | 1(50.00) | | |
| University of graduation | | | | |
| Al-Azhar University | 6(9.84) | 55(90.16) | 4.9771 | 0.419 |
| Al Islamic university | 3(23.08) | 10(76.92) | | |
| Palestine university | 6(15.00) | 34(85.00) | | |
| Al-Quds University | 2(28.57) | 5(71.43) | | |
| University College of Applied Sciences | 6(24.00) | 19(76.00) | | |
| Others | 2(28.57) | 5(71.43) | | |
| Continuous Variable | Incorrect Mean | Correct Mean | t-test | P-value |
| Age (years) | 35.64 | 32.34 | 1.8 | 0.0723 |

**Table 3:** Level of knowledge by nurses' characteristics.

### Attitude of nurses regarding care of pediatric asthmatic patient

Three points Likert scale was used to reflect the attitude of nurses. The mean of nurse's attitude was classified from 1 to 1.66 for disagree, 1.67 to 2.33 for neutral, and 2.34 to 3 for completely agree attitude.

Of nurses, the overall relative mean of nurses had unsatisfactory attitude was 65.63%. As, the relative mean of nurses with negative attitude was 41.7%, and 36.8% had a positive attitude and 24.56% was classified as fair attitude (Table 4). Negative attitude believed to affect nurses practice in spite of being have good level of knowledge.

Table 4 reveals that 14.38% of nurses were agreed that asthma is a common disease in Gaza Strip, but 45.1% were disagreed and 40.52% were neutral. Whereas 16.99% were agreed that children are more susceptible to asthma disease, but 52.29% were disagreed and 30.72% were neutral. As well, 75.16% decided that pollens and dust are not factors of asthma disease, but 13.73% were disagreed with that and 11.11%were neutral. However, 30.72% agreed that physical inactivity is risk factor asthma disease while 37.25% disagreed and 32.03% were neutral. 56.87% of nurses agreed that respiratory infection can not considered as an important cause of asthma disease, but 23.53% disagreed and 19.61% were neutral.

Conversely, only 34.64% of nurses agreed that cyanosis is the first signs of asthmatic patients, 47.06% disagreed and 18.30 were neutral. And 8.50% of nurses decided that taking relive meditation, help positively the asthma attack, more than half of nurses (75.16%) disagreed and 16.34% were neutral. Still, 45.10% of them believed that taking asthma medication can cause addiction, but 35.29% disagreed with that and 19.61% were neutral.

Moreover, only 3.27% of nurses agreed that asthma disease varies in severity between day and night while more than two third of nurses (85.62%) disagreed and 11.11% were neutral. Whereas 77.78% of them agreed that during asthmatic attack the patient should be in the fowler position, but 16.99% disagreed with that and only (5.23%) were neutral.

However, 18.30% of nurses decided that bronchodilators used for asthma to reduce inflammation and 54.90% of them disagreed and 5.88% were neutral. 18.30% of nurses agreed that asthma disease have higher rates in males more than females while 39.87% disagreed with that and 41.83% were neutral. More than half of nurses (63.40%) agreed that oxygen mask is not effective during asthmatic attack, but 18.30% disagreed with that and 18.30% were neutral. Finally, 31.37% of them agreed that asthmatic patient can do exercises, but 39.22% disagreed with that and 29.41 were neutral.

| # | Item | Disagree n (%) | Fair n (%) | Agree n (%) |
|---|---|---|---|---|
| | In your opinion, asthma is a common disease in Gaza Strip. | 69 (45.1) | 62 (40.52) | 22 (14.38) |
| | Children are more susceptible to asthma disease. | 80(52.29) | 47(30.72) | 26(16.99) |
| | In your opinion, pollens and dust are not factors of cause asthma. | 21(13.73) | 17(11.11) | 115(75.16) |
| | In your opinion, physical inactivity is factor of cause asthma. | 57(37.25) | 49(32.03) | 47(30.72) |
| | Respiratory infection cannot be considered as an important cause of asthma disease. | 36(23.53) | 30(19.61) | 87(56.86) |
| | In your opinion, cyanosis is the first signs of asthmatic patient. | 72(47.06) | 28(18.30) | 53(34.64) |
| | In your view, taking relive medication, help positively the asthma attach. | 115(75.16) | 25(16.34) | 13(8.50) |
| | In your view, taking asthma medication can cause addiction. | 54(35.29) | 30(19.61) | 69(45.10) |
| | In your opinion, Asthma disease varies in severity between day and night. | 131(85.62) | 17(11.11) | 5(3.27) |
| | In your opinion, during asthmatic attack the patient should be in the fowler position. | 26(16.99) | 8(5.23) | 119(77.78) |
| | In your opinion, bronchodilators used for asthma to reduce inflammation. | 84(54.90) | 9(5.88) | 60(39.22) |
| | In your opinion, Asthma disease have higher rates in males more than females. | 61(39.87) | 64(41.83) | 28(18.30) |
| | In your view, oxygen mask is not effective during asthmatic attack. | 28(18.30) | 28(18.30) | 97(63.40) |
| | In your opinion, Asthmatic patient can do exercises. | 60(39.22) | 45(29.41) | 48(31.37) |
| | Total | 41.7 | 24.56 | 36.8 |

**Table 4**: Attitude of nurses regarding care of pediatric asthmatic patient (n = 153).

### The mean of nurses' attitude regarding pediatric asthmatic patient care

Table below exposes the extent of agreements among the pediatric nurses toward the care of asthmatic children. Likert scale (three points) was used to reflect the attitude of nurses, the mean

of disagree attitude considered from 1 to 1.66, 1.67 to 2.33, and 2.34 to 3 considered the mean of neutral and agree attitude, respectively. The majority of nurses (87.15%) were agreed that the pollens and dust are not factors of asthma disease with mean (2.61%) and standard deviation (0.058) which ranked in the first one. Followed by, (86.93%) of nurses were agreed that during asthmatic attack the patient should be in fowler position with mean (2.61%) and stander deviation (0.061) which placed in the second rank. And (81.7%) were decided that oxygen mask is not effective during asthmatic attack with mean (2.45) and standard deviation (0.063) which applied in the third rank. (77.78%) of nurses believe respiratory infection can considered as an important cause of asthma disease with mean (2.33%) and stranded deviation (0.067) which placed in 4th rank. Yet, (69.93) % of nurses were agreed that taking asthma medication can cause addiction. And about (64.49%) of nurses were decided that physical inactivity is a factor of causing asthma with mean (1.93%) and standard deviation (0.066) placed in sixth rank. (64.05%) of them were agreed asthmatic patient can do exercises which placed in in 7th rank with mean (1.92) and standard deviation (0.068). However, 62.53% of nurses believe cyanosis is the first signs of asthmatic patient which applied in the eighth rank. Moreover, (61.44%) of them decided bronchodilator used for asthma to reduce inflammation with mean (1.84%) and standard deviation (0.077). As well, (59.48%) were agreed that the asthma disease have higher rates in males more than female in the 10th rank. Conversely, more than half of the participants (56.43%) believed asthma is a common disease in Gaza strip with mean (1.69%) and stranded deviation (0.057). About (54.9%) of them that were decided children are more susceptible to asthma disease, with mean (2.61%) and standard deviation (0.061) which placed in the twelfth rank. Followed by (44.44%) of nurses believe taking relive medication help positively the asthma attack with mean (1.33%). Finally, (39.22%) of them were decided asthma disease varies in severity between day and night with mean (1.18%) and stranded deviation (0.037) to be applied and ranked as 14th.

## Practices of nurses regarding pediatric asthmatic patient care

Likert scale (three points) was used to evaluate the practices of nurses. More than half of nurses have good practice (69.1%) and 17.2% of them have fair level of practice, but 13.2% have poor practice. 88.24% of nurses have good practices caring child who has asthma disease, but 3.27% they have poor practice and 8.50% were neutral. Whereas 70.16% of nurses have good practice to use breathing and coughing exercise to mobilize the mucus secretion, but 9.25% they have poor practice and 15.69% were neutral. As well, 78.43% of nurses have good practice to put the patient with asthmatic attack in sitting position when come to emergency department but, 13.73% they have poor practice and 7.84% were neutral. However, 67.96% of nurses agreed to give the patient nebulizer of ventolin as soon as arrived at the hospital, but16.34% were disagreed and 15.69% were neutral. 92.16% of nurses have good practice regard teaching the patient who is newly diagnosed with asthma to reduce exposure asthma triggers but, 1.96% they have poor practice and 5.88% were neutral. Moreover, 79.74% of nurses have good practice regarding tachycardia is a side effect of the nebulizer Albuterol, but 4.58% have poor practice and 15.96% were neutral.

However, 72.55% have good practice regarding when the patient experiencing an acute asthma arrives at the urgent care clinic, tachypnea and prolonged expiration is assessment finding require immediate action, but 16.99% they have poor practice and 10.46% were neutral. 29.41% of nurses have good practice regarding advice patient advice with asthma to take Theophylline to avoid consume the Wheat, but 22.88% they have poor practice and 47.71% were neutral. Whereas 39.22% of nurses have good practice regarding repeat nebulizer of ventolin every five minutes, but 35.95% they have poor practice and 24.84 were neutral. Finally,73.20% of nurses have good practice regarding prepare to administer a corticosteroid to a patient with diagnosis of asthma is reducing the swelling in the airway, but 7.19% they have poor practice and 19.61% were neutral.

| # | Item | Mean | SD | Relative mean | Rank | Classification |
|---|---|---|---|---|---|---|
| | In your opinion, asthma is a common disease in Gaza Strip | 1.69 | 0.057 | 56.43 | 11 | Neutral |
| | Children are more susceptible to asthma disease | 1.65 | 0.061 | 54.9 | 12 | Neutral |
| | In your opinion, pollens and dust are not factors of cause asthma | 2.61 | 0.058 | 87.15 | 1 | Agree |

| | | | | | | |
|---|---|---|---|---|---|---|
| | In your opinion, physical inactivity is factor of cause asthma | 1.93 | 0.066 | 64.49 | 6 | Neutral |
| | Respiratory infection cannot be considered as an important cause of asthma disease | 2.33 | 0.067 | 77.78 | 4 | Agree |
| | In your opinion, cyanosis is the first signs of asthmatic patient | 1.88 | 0.072 | 62.53 | 8 | Neutral |
| | In your view, taking relive medication, help positively the asthma attach | 1.33 | 0.050 | 44.44 | 13 | Disagree |
| | In your view, taking asthma medication can cause addiction | 2.1 | 0.072 | 69.93 | 5 | Agree |
| | In your opinion, Asthma disease varies in severity between day and night | 1.18 | 0.037 | 39.22 | 14 | Neutral |
| | In your opinion, during asthmatic attack the patient should be in the fowler position | 2.61 | 0.061 | 86.93 | 2 | Agree |
| | In your opinion, bronchodilators used for asthma to reduce inflammation | 1.84 | 0.077 | 61.44 | 9 | Neutral |
| | In your opinion, Asthma disease have higher rates in males more than females | 1.78 | 0.059 | 59.48 | 10 | Agree |
| | In your view, oxygen mask is not effective during asthmatic attack | 2.45 | 0.063 | 81.7 | 3 | Agree |
| | In your opinion, Asthmatic patient can do exercises | 1.92 | 0.068 | 64.05 | 7 | Agree |

**Table 5:** Nurses attudes regarding care of pediatric asthmatic patient (relative mean).

Our study came in line with the previous studies regarding the relationship between knowledge and demographic characteristics including as: gender, age, marital status, level of education, and years of experience (Shelan, 2019; Afifa, 2017).

| # | Item | Poor n (%) | Fair n (%) | Good n (%) |
|---|---|---|---|---|
| | Have you been involved in caring a child who has asthma disease? | 5(3.27) | 13 (8.50) | 135 (88.24) |
| | To mobilize the mucus secretion, you as a nurse will use breathing and coughing exercise | 14(9.25) | 24(15.69) | 115(70.16) |
| | When the patient with asthmatic attack come to emergency department, you as nurse should put patient in sitting position? | 21(13.73) | 12(7.84) | 120(78.43) |
| | Has a nebulizer of ventolin gave to the patient as soon as he arrives at the hospital? | 25(16.34) | 24(15.69) | 104(67.97) |
| | When providing discharge teaching to a patient who is newly diagnosed with asthma, as you a nurse the point " Eliminate or reduce exposure to known asthma triggers" should you emphasize? | 3(1.96) | 9(5.88) | 141(92.16) |
| | A patient with asthma received a nebulizer of Albuterol. Tachycardia is a side effect of this medication? | 7(4.58) | 24(15.69) | 122(79.74) |

| | | | | |
|---|---|---|---|---|
| | A patient experiencing an acute asthma exacerbation arrives at the urgent care clinic. As you a nurse Tachypnea and prolonged expirations is the assessment findings require immediate action? | 26(16.99) | 16(10.46) | 111(72.55) |
| | A patient with asthma is taking Theophlline. As you a nurse should advise the patient avoid consuming Wheat? | 35(22.88) | 73(47.71) | 45(29.41) |
| | Can you repeat a nebulizer of Ventolin every five minutes? | 55(35.95) | 38(24.84) | 60(39.22) |
| | The healthcare provider prepares to administer a corticosteroid to a patient with a diagnosis of asthma. Is reducing the swelling the rationale for administering this drug to this patient? | 11(7.19) | 30(19.61) | 112(73.20) |
| | Total | 13.214 | 17.2 | 69.108 |

**Table 6:** Practices of nurses regarding care of pediatric asthmatic patients (n = 153).

### The relative mean of nurse's practices regarding care of asthmatic patients

Table 6 exposes the extent of behavioral practices of the pediatric nurses toward the care of asthmatic children. The overall relative mean for nursing practice was 84.5% which is accepted and has a good chance to improve more easily to optimal practice.

Practice was categorized to poor, neutral good as follow, from 1 to 1.66 (< 55.33%) considered poor practice, 1.67 to 2.33 (55.34 - 77.66%) considered neutral and 2.34 to 3 (77.67 - 100%) considered good practice. The majority of nurses showed (93.73%) that they can teach a patient who newly diagnosed with asthma to reduce exposure to asthma triggers with mean (2.9%) and standard deviation (0.53) in the first rank. Followed by, (94.99%) of nurses can be caring child who has asthma disease with mean (2.85%) and standard deviation (0.64) in the second rank, About (91.72%) of nurses were agreed that tachycardia is a side effect of nebulizer albuterol with mean (2.75%) and standard deviation (0.77) which placed in the Third rank. Yet, (88.67) % of nurses can be used breathing and coughing exercise to mobilize the mucus secretions with standard deviation (0.71) which placed in the fourth rank, also (88.67%) of nurses showed that they can be administer corticosteroids to patient with asthma disease to reduce the swelling in the airway with mean (2.66%), but with different standard deviation (0.77) which applied in the fifth rank. In the Sixth rank, (88.24%) of nurses were agreed that patient with asthmatic attack should be put in sitting position when come to emergency department with mean (2.66%) and standard deviation (0.71).

As well, (85.19%) of nurses were agreed that when a patient experience an acute asthma arrives at the urgent care clinic, assessment tachypnea and prolonged expiration is a finding require immediate action with mean (2.56%) and standard deviation (0.72), which placed in 7$^{th}$ rank. Conversely, more than half of participants (83.88%) saw that they can give nebulizer ventolin to the patient as soon as he arrives at the hospital with mean (2.52%) and standard deviation (0.35) which placed in 8$^{th}$ rank. (68.85%) of nurses showed they can be advising patient with asthma should advise to avoid consuming wheat when take theophylline with mean (2.07%) and standard deviation (0.86) which placed in 9$^{th}$ rank. Finally, (67.76%) of nurses show that they can repeat a nebulizer of ventolin every five minutes with mean (2.03%) and standard deviation (0.61).

## Discussion

The present study reveals that more than half of nurses were females (55.65, n = 85) with age range between 21 - 55 years, the educational level was Bachalor (62.09%) and the experience range between 1 to 5 years' experience (43.14%%). In this study, we depended on one questionnaire consist of three sections including

| # | Item | Mean | SD | Relative mean | Rank | Classification |
|---|---|---|---|---|---|---|
| | Have you been involved in caring a child who has asthma disease? | 2.85 | 0.64 | 94.99 | 2 | Good |
| | To mobilize the mucus secretion, you as a nurse will use breathing and coughing exercise | 2.66 | 0.71 | 88.67 | 4 | Good |
| | When the patient with asthmatic attack come to emergency department, you as nurse should put patient in sitting position? | 2.65 | 0.76 | 88.24 | 6 | Good |
| | Has a nebulizer of ventolin gave to the patient as soon as he arrives at the hospital? | 2.52 | 0.35 | 83.88 | 8 | Good |
| | When providing discharge teaching to a patient who is newly diagnosed with asthma, as you a nurse the point " Eliminate or reduce exposure to known asthma triggers" should you emphasize? | 2.9 | 0.53 | 96.73 | 1 | Good |
| | A patient with asthma received a nebulizer of Albuterol. Tachycardia is a side effect of this medication? | 2.75 | 0.77 | 91.72 | 3 | Good |
| | A patient experiencing an acute asthma exacerbation arrives at the urgent care clinic. As you a nurse Tachypnea and prolonged expirations is the assessment findings require immediate action? | 2.56 | 0.72 | 85.19 | 7 | Neutral |
| | A patient with asthma is taking Theophlline. As you a nurse should advise the patient to avoid consuming Wheat? | 2.07 | 0.86 | 68.85 | 9 | Neutral |
| | Can you repeat a nebulizer of Ventolin every five minutes? | 2.03 | 0.61 | 67.76 | 10 | Neutral |
| | The healthcare provider prepares to administer a cortico-steroid to a patient with a diagnosis of asthma. Is reducing the swelling the rationale for administering this drug to this patient? | 2.66 | 0.77 | 88.67 | 4 | Neutral |
| | Total | 25.65 | - | 85.5 | - | Good |

**Table 7:** Practices of nurses regarding care of pediatric asthmatic patients (relative means).

(knowledge, attitude, and practice) to evaluate level of knowledge, attitude and practice. The result of this study showed that there is good level of knowledge, attitude and practice.

The findings from this study were reviewed and suggest that the majority of nurses have good knowledge about asthma (94.12%), this results consistent with another study in Khartoum city, Sudan [9], which conducted study to assess the knowledge toward asthmatic attack in children at paediatric hospitals that revealed 75% of nurses know about asthma disease. (73.86%) of nurses believe that asthma characterised by wheezing and this result agree with another study which showed that (58,03%) known the sings of asthma is wheezing [9].

In this study, more than half of nurses showed fair level of knowledge regarding knowing that spirometry is the main test use to diagnosis asthma disease (71.24%) and emergency procedures such as giving oxygen supplementation to treat acute asthma attack when asthmatic patient arrives at the hospital (67.97%). This result agrees with study carried out in Sudan showed 72% of nurses know about diagnostic evaluation and emergency treatment of acute asthma attack (70%) [9].

This study founded (79.74%) of involved nurses recognise the side effects of Albuterol such as tachycardia and this result differ from the study that was done by Abdallah and wafa, (2014) which suggested that (70%) of nurses realise the signs of overdose in Sal-

butamol. The present study reveals that asthma is most common chronic childhood disease (56.43%).

## Conclusion

This study examined assessment of nurses knowledge, attitude and practice related to nursing care of asthmatic patient in pediatric hospitals in Gaza Strip. Based on the finding of the present study, we conclude that the majority of nurses have good knowledge and practice (definition, triggers factors, complications, medications, proper nursing intervention, and correct inhaler technique). However, attitude of nurses was moderate. No significant relationship was found between nurses knowledge, attitude and practice with demographic factors (gender, age, material status, years of experience, and educational level.

## Conflict of Interest

No financial interest or any conflict of interest exists.

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