

## Nurse's Knowledge about Modifiable and Non-Modifiable Risk Factors of Heart Failure Patient in Erbil Teaching Hospitals

معارف الممرضين للعوامل الخطرة القابلة للتغيير وغير القابلة للتغيير لحدوث عجز القلب في مستشفيات اربيل التعليمية

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### الخلاصة:

**خلفية البحث:** ترتبط التغيرات بوظيفة القلب للمصابين بعجز القلب مما يؤدي إلى انخفاض النتاج القلبي. هذه النتائج تشكل تراجعاً في حجم المخ التي هي نتيجة لوجود خلل في الضغط الانقباضي أو الانبساطي أو للحالتين معاً. يمكن أن يلعب الممرض دوراً في الوقاية من مرض عجز القلب عندما يكون على دراية بعوامل الخطورة المرتبطة بالمرض وإيضاً قد يكون الممرض معلماً ومحفزاً للمريض. وتهدف الدراسة الحالية من إيجاد العلاقة بين معارف الممرض المتعلقة بعوامل الخطورة القابلة وغير القابلة للتغيير لحدوث عجز في القلب.

**المنهجية:** تم اختيار عينة غير غرضية للفترة من 20 من شهر شباط 2014 إلى 20 من شهر نيسان عام 2014 وتم اختيار 64 ممرض وممرضة العاملين في الردهات الباطنية والعناية القلبية في مستشفيات اربيل التعليمية في كل من مستشفى هولير ومستشفى رزكري وشملت اداة الدراسة من جزأين. الأول شمل الخصائص الاجتماعية والديموغرافية والجزء الثاني شمل على الملاحظة والتي تضمنت 21 فقرة حول معارف الممرضين للعوامل القابلة للتغيير وغير القابلة للتغيير لحدوث عجز القلب. فقد تم استخدام الوسائل الإحصائية (برنامج SPSS الإصدار 17) للبيانات الداخلة وتحليل مثل  $S=$  هام ( $>0.05$ )،  $VHS=$  ذو أهمية عالية جداً ( $>0.000$ ) و  $NS=$  غير هام ( $<0.05$ )، النسبة المئوية، والتردد وتم استخدام اختبار مربع للتفسير.

**النتائج:** ان غالبية العينات (67.2%) كانت ضمن الفئة العمرية 23-32 سنة، وان الذكور كانوا أكثر من الإناث، وكانت الأغلبية 83.8% منهم متزوج و 75% منهم من خريجي معاهد التمريض. وكان لديهم خبرة من 1-7 سنوات. واطهرت الدراسة وجود علاقة عالية جداً بين الجنسين والحالة الزوجية ومستويات التعليم وسنوات الخبرة.

**الاستنتاج:** وفقاً للنتائج، كانت الغالبية العظمى من العينات في غضون الفئة العمرية من الشباب، الذكور أكثر من الإناث، وقد تخرج معظمهم من معاهد التمريض. بخصوص التحليلات الإحصائية بين الفئات العمرية ومعارف الممرضين حول مخاطر عجز القلب يظهر غير هامة، في حين يظهر هامة للعناية داخل الجنسين وهامة للعناية بين معارف الممرضين مع حالتهم الزوجية، ومستويات التعليم، وسنوات الخبرة في الأجنحة الطبية و وحدة العناية التاجية.

**التوصيات:** دورة التدريب والتعليم المستمر و ورشة عمل من قبل منظمة الصحة العالمية ينبغي أن يزيد معلومات الممرضين في وحدة العناية التاجية والأجنحة الطبية لتقديم أفضل الرعاية التمريضية لمريض عجز القلب. وينبغي أن يتم إجراء مزيد من الدراسات لمعرفة الفجوة بين الممارسات التمريضية و المواضيع النظرية.

### Abstract:

**Background:** The changes in cardiac function are associated with heart failure which result in a decrease of cardiac output. This results form a decline in stroke volume that is due to systolic dysfunction, diastolic dysfunction or a combination of the two. Nurses can play a role in prevention of heart failure disease by being knowledgeable of the risk factors associated with disease and also, the nurse may be a teacher-motivator for the patient. The aim of the study is to find out the association between nurse's knowledge about modifiable and non-modifiable risk factors of heart failure.

**Methods:** A non probability purposive sample was 20 of February, 2014 to 20 of April 2014, 64 subjects, were selected in medical wards and coronary care units in both Hawler and Rizgary Teaching Hospitals. The study instrument contained of two parts. Part one included socio-demographic characteristics and part two was observational check list which contained 21 items for nurse's knowledge about modifiable and non-modifiable risk factors of heart failure patient. Data was analysis by the statistical package for science service (SPSS version 17) was used for data entering and analysis such as  $S=$  significant ( $<0.05$ ), very highly significant ( $<0.000$ ) and non-significant ( $>0.05$ ), Percentage, frequency and Chi-square test were used to interpretation.

**Results:** According to the results, that majority of the sample (67.2%) were within age group 23-32 years old. Male were more than female, the majority 83.8% of them were married and 75% of them graduates from nursing institute. Most of them had 1-7 years of experiences. The study shows very highly significance association of gender and highly significances association of marital status, levels of education and years of experiences in medical ward and coronary care unit.

**Conclusion:** According to the results, the majority of the samples were within young age group, male more than female, the majority of them were graduated from nursing institution. Concerning statistical association between age group and nurse's knowledge about heart failure risks shows non-significant, while shows very highly significant within gender and highly significant between nurse's knowledge with their marital status, levels of education and years of experiences in medical ward and coronary care unit.

**Recommendation:** Training session, continuous education and work shop by world health organization should be conduct for nurses at coronary care unit and medical ward to provide best nursing care for heart failure patient. Further study should be done to find out the gap between nursing practices and theory topics

**Keywords:** Nurses. Knowledge, risk factors, heart failure.

## INTRODUCTION:

Heart failure is a condition in which the heart has lost of the ability to pump enough blood to the body's tissues, with too little blood being delivered, the organs and other tissues do not receive enough oxygen and nutrients to function properly<sup>1&2</sup>. Heart failure is a common, costly, disabling and often fatal disorder that affects approximately 5.8 million Americans, despite of improvements in medical care and advances in treatment, hospital discharges for heart failure have increased 155% over the past two decades<sup>3</sup>. Patient with heart failure may be asymptomatic or mildly symptomatic due to compensatory mechanisms<sup>4</sup>. The heart fails when, owing to intrinsic disease or a structural defect, it can't handle a normal blood volume or in the absence of disease, it can't tolerate a sudden expansion in blood volume<sup>5</sup>. Types of heart failure are acute and chronic, acute is a sudden changes in the heart ability to contract and can cause life threatening symptoms and pulmonary edema. Chronic heart failure occurs when the heart's ability to pump effectively is gradually compromised and its impaired contractility remains prolonged<sup>6</sup>. Common causes of heart failure are hypertension, coronary artery disease, cardiomyopathy, valvular disease, congenital disease, and cardiac infection<sup>7</sup>. Risk factors for heart failure patient may be divided into two classifications; modifiable and non-modifiable risk factors. Modifiable risk factors are those that an individual can change, including elevated serum cholesterol level, a diet high in saturated fat, obesity, physical inactive, hypertension, cigarette smoking, and alcohol consumption. And non-modifiable risk factors are those that an individual can't change, such as age, gender, ethnicity and heredity<sup>8</sup>. Right sided heart failure occurs if the heart can't pump enough blood to the lungs to pick up oxygen. Left side heart failure occurs if the heart can't pump enough oxygen-rich blood to rest of the body<sup>9</sup>. The most causes of heart failure are coronary artery disease, cardiomyopathy, hypertension, heart valve disease, congenital heart disease and alcohol consumption<sup>4</sup>. The most symptoms are shortness of breathing, frequent cough, swollen extremities, abdominal selling, fatigue, dizziness and sudden deth<sup>10</sup>. Heart failure is usually treated with lifestyle changes and medicines. Dietary changes to maintain proper weight and reduce salt intake may be needed, reducing salt intake helps to lessen swelling in the legs, feet, and abdomen, appropriate exercise also may be recommended and other lifestyle changes that may reduce the symptoms of heart failure including stopping smoking, reducing alcohol consumption and not using harmful drugs. Some drugs may be described such as diuretics, digitals, vasodilators, betablockers, angiotensin converting enzyme inhibitors and calcium channel blocker<sup>11</sup>. Nurses play a key role in the evaluation of heart failure disease, monitoring the hemodynamic function and disease management. Nursing interventions have been shown to reduce patient stress. The nurse provided care management programs using an integrated or multifactor approach have been shown to be highly effective in reducing morbidity and mortality<sup>12</sup>. Nurse's skills make a different in care, such as monitoring oxygen, pulse oximetry, cardiac monitor, assess cardiac status, assess neurological status, observe dyspnea, blood pressure, neck vein, peripheral edema, lethargy, check pulse rate, heart sound, weight, and etc<sup>5&12</sup>. The nurse should keep abreast of the latest research finding so as to affect community-based health education programs, positive motivation strategies, effects of lowering cholesterol and triglycerides, gender differences, and nutritional studies<sup>13</sup>.

**Objective Of The Study:** Is to find out the association between nurse's knowledge about modifiable and non-modifiable risk factors of heart failure.

## Subjects And Methods:

The study was conducted at both Hawler and Rizgary Teaching Hospitals-Medical ward and coronary care units in Erbil City. The study was carried out from the period of February 2014 to April 2014. The population of the study was the nurses who worked in both medical wards and coronary care units in Rizgary and Hawler Teaching Hospitals. A was tool prepared by the researcher as a check list questionnaire. A purposive sample of nurses was selected through a data collection in the three shifts and both genders. The total number of nurses in both areas was 64 nurses. Each of the nurses was assessed by observation individually face to face and the researcher spent 20 to 25 minutes with each nurse during the period of observation. For measuring and assessing the knowledge of nurses, it was considered to be as know=1 and don't know=2. The statistical package for science service (SPSS version 17) was used for data entering and analysis such as S= significant (<0.05), very highly significant (<0.000) and non-significant (>0.05), Percentage, frequency and Chi-square test were used to interpretation.

## RESULTS:

**Table 1. Socio-demographic data of nurses:**

Age group	Frequency	%
23-32	43	67.2
33-42	17	26.6
43 and more	4	6.2
Total	64	100%
<b>Gender</b>		
male	47	73.4
female	17	26.6
Total	64	100%
<b>Levels of education</b>		
Secondary nursing school	7	10.9
Nursing institute	48	75.0
Nursing college	9	14.1
Total	64	100%
<b>Years of experience in medical ward and CCU</b>		
<1	7	10.9
1-7	45	70.4
8 and more	12	18.7
Total	64	100%

As shown in table 1, more than half of the nurses (67.2%) were within age group 23-32 years, around (73.4%) were male and high percentages of the study sample (82.8) were married while no one of them was divorced and widowed. 75% of them were graduated from nursing institute and (70.3%) of them had 1-7 years of experiences in medical and coronary care unit.

**Table 2. Association between age group and nurse's knowledge about modifiable and non-modifiable risk factors of patient with heart failure.**

Items  Do you know that	Age group No=64						p.value chi. square
	23-32		33-42		43 and more		
	know N(%)	Don't know N(%)	know N(%)	Don't know N(%)	know N(%)	Don't know N(%)	
1.Salty diet is worse heart failure	43(67.2)	0 (0.0)	16(25)	1(1.6)	3(4.7)	1(1.6)	0.037*
2.Hypercholesterol is worse heart failure	41(64.1)	2(3.1)	15(23.4)	2(3.1)	3(4.7)	1(1.6)	0.604
3.Sedentary lifestyle is worsening heart failure	24(37.5)	19(29.7)	9(14.1)	8(12.5)	3(4.7)	1(1.6)	0.395
4. High blood pressure increase exposing patient to heart failure	33(51.6)	10(15.6)	17(26.6)	0(0.0)	3(4.7)	1(1.6)	0.837
5.Cigarette smoking is leading to bad prognosis of heart failure	41(64.1)	2(3.1)	17(26.6)	0(0.0)	3(4.7)	1(1.6)	0.074
6.Stress has been worse condition of heart failure patient	23(35.9)	20(31.3)	9(14.1)	8(12.5)	3(4.7)	1(1.6)	0.125
7.Obesity increases the risk of heart failure patient	35(54.7)	8(3.1)	14(21.9)	3(3.1)	4(6.3)	0(0.0)	0.771
8.Hyperglycemia causes heart failure	15(23.4)	28(43.8)	10(15.6)	7(10.9)	2(3.1)	2(3.1)	0.379
9.Aging has a role to increase the risk of heart failure patient	26(40.6)	17(26.6)	12(18.8)	5(7.8)	3(4.7)	1(1.6)	0.278
10.Males more than females expose to heart failure	18(28.1)	25(39.1)	3(4.7)	14(21.9)	1(1.6)	3(4.7)	0.624
11. family history is a risk of exposing patient to heart failure	35(54.7)	8(12.5)	14(21.9)	3(4.7)	2(3.1)	2(3.1)	0.206
12.There are types of risk factors of heart failure	21(34.4)	22(32.8)	9(14.1)	8(12.5)	3(4.7)	1(1.6)	0.368
13.There are categories of modifiable risk factors of heart failure	11(17.2)	32(50.0)	6(9.4)	11(17.2)	1(1.6)	3(4.7)	0.824
14.There are categories of non- modifiable risk factors of heart failure	9(14.1)	34(53.1)	3(4.7)	14(21.9)	1(1.6)	3(4.7)	0.798
15.The most dangerous of modifiable risk factors of heart failure	14(21.9)	29(45.3)	7(10.9)	10(15.6)	1(1.6)	3(4.7)	1.000
16.The most dangerous of non- modifiable risk factors of heart failure	11(17.2)	32(50.0)	4(6.3)	13(20.0)	2(3.1)	2(3.1)	0.753
17.One of the most modifiable risk factors that affects heart failure patient	13(20.3)	30(46.9)	5(7.8)	12(18.8)	1(1.6)	3(4.7)	0.650
18.One of the most non- modifiable risk factors that affects heart failure patient	11(17.2)	32(50.0)	4(6.3)	13(20.3)	1(1.6)	3(4.7)	1.000
19.Sleep apnea has been linked to the development of heart failure patient	20(31.3)	23(35.9)	9(14.1)	8(12.5)	2(3.1)	2(3.1)	1.000
20.Severe lung disease may lead to heart failure	28(43.8)	15(23.4)	15(23.4)	2(3.1)	3(4.7)	1(1.6)	0.919
21.Cardiomyopathy may increase the risk of heart failure	37(57.8)	6(9.4)	16(25.0)	1(1.6)	3(4.7)	1(1.6)	0.219

\*Significant

Table 2, shows non-significant association between age group and nurses knowledge in all items except the first item, do you know that salty diet is worse heart failure it was significant.

**Table 3. Association between gender and nurse's knowledge about heart failure patient. N=64**

Items	Male		Female		P. value Chi-square
	Know	Don't know	Know	Don't know	
Do you know that					
1.Salty diet is worse heart failure	45(70.3)	2(3.1)	17(26.6)	0(0.0)	0.388
2.Hypercholesterol is worse heart failure	42(65.6)	5(7.8)	17(26.6)	0(0.0)	0.161
3.Sedentary lifestyle is worsening heart failure	23(35.9)	24(37.5)	13(20.4)	4(6.2)	0.045*
4. High blood pressure increase exposing patient to heart failure	37(57.8)	10(15.6)	16(25)	1(1.6)	0.142
5.Cigarette smoking is leading to bad prognosis of heart failure	45(70.3)	2(3.1)	16(25)	1(1.6)	0.786
6.Stress has been worse condition of heart failure patient	43(67.2)	4(6.2)	16(25)	1(1.6)	0.007**
7.Obesity increases the risk of heart failure patient	37(57.8)	10(15.6)	16(25)	1(1.6)	0.346
8.Hyperglycemia causes heart failure	17(26.6)	30(46.8)	10(15.6)	7(10.9)	0.105
9.Aging has a role to increase the risk of heart failure patient	30(46.8)	17(26.6)	11(17.2)	6(9.4)	0.596
10.Males more than females expose to heart failure	11(17.2)	36(56.2)	11(17.2)	6(9.4)	0.002**
11. family history is a risk of exposing patient to heart failure	39(60.9)	8(12.5)	12(18.8)	5(7.8)	0.277
12.There are types of risk factors of heart failure	22(34.3)	25(39.1)	11(17.2)	6(9.4)	0.080
13.There are categories of modifiable risk factors of heart failure	7(10.9)	40(65.5)	11(17.2)	6(9.4)	0.000***
14. There are categories of non-modifiable risk factors of heart failure	2(3.1)	45(70.3)	11(17.2)	6(9.4)	0.000***
15.The most dangerous of modifiable risk factors of heart failure	9(14)	38(59.4)	13(20.4)	4(6.2)	0.000***
16. The most dangerous of non-modifiable risk factors of heart failure	6(9.4)	41(64)	11(17.2)	6(9.4)	0.000***
17.One of the most modifiable risk factors that affects heart failure patient	9(14)	38(59.4)	10(15.7)	7(10.9)	0.002**

18.One of the most non- modifiable risk factors that affects heart failure patient	6(9.4)	41(64)	10(15.7)	7(10.9)	0.000***
19.Sleep apnea has been linked to the development of heart failure patient	18(28.1)	29(45.3)	13(20.4)	4(6.2)	0.007**
20.Severe lung disease may lead to heart failure	31(48.5)	16(25)	15(23.4)	2(3.1)	0.080
21.Cardiomyopathy may increase the risk of heart failure	40(62.5)	7(10.9)	16(25)	1(1.6)	0.336

\*significant      \*\*Highly significant      \*\*\* Very highly significant

Table 3, show significant association in item sedentary lifestyle is worsening heart failure, between gender and nurse's knowledge, while show highly significant association in items stress has been worse condition of heart failure patient, males more than females expose to heart failure, there are categories of modifiable risk factors of heart failure, there are categories of non-modifiable risk factors of heart failure, the most dangerous of modifiable risk factors of heart failure, the most dangerous of non- modifiable risk factors of heart failure, one of the most modifiable risk factors that affects heart failure patient, one of the most non- modifiable risk factors that affects heart failure patient and sleep apnea has been linked to the development of heart failure patient and the rest items show non-significant association.

**Table 4. Association between levels of education and nurse's knowledge about heart failure patient.**

Items Do you know that	Levels of education N=64						p. value chi- square
	Ngs. secondary		Institute Ngs.		Ngs.college		
	know	Don't know	know	Don't know	know	Don't know	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
1.Salty diet is worse heart failure	7(10.9)	0(0.0)	46(71.9)	2(3.1)	9(14.1)	0(0.0)	0.709
2.Hypercholesterolo is worse heart failure	7(10.9)	0(0.0)	43(67.2)	5(7.8)	9(14.1)	0(0.0)	0.405
3.Sedentary lifestyle is worsening heart failure	4(6.3)	3(4.7)	24(37.5)	24(37.5)	8(12.5)	1(1.6)	0.097
4. High blood pressure increase exposing patient to heart failure	6(9.4)	1(1.6)	38(59.4)	10(15.6)	9(14.1)	0(0.0)	0.308
5.Cigarette smoking is leading to bad prognosis of heart failure	6(9.4)	1(1.6)	46(71.9)	2(3.1)	9(14.1)	0(0.0)	0.384
6.Stress has been worse condition of heart failure patient	4(6.3)	3(4.7)	22(35.5)	26(38.5)	9(14)	0(0.0)	0.011*
7.Obesity increases the risk of heart failure patient	7(10.9)	0(0.0)	38(59.4)	10(15.6)	9(14.1)	0(0.0)	0.351
8.Hyperglycemia causes heart failure	6(9.4)	1(1.6)	46(71)	2(3.1)	9(14.1)	0(0.0)	0.050*
9.Aging has a role to increase the risk of heart failure patient	4(6.3)	3(4.7)	28(43.8)	20(31.3)	9(14.1)	0(0.0)	0.040*
10.Males more than females expose to heart failure	3(4.7)	4(6.3)	12(18.8)	36(56.3)	7(10.9)	2(3.1)	0.008**
11. family history is a risk of exposing patient to heart failure	5(7.8)	2(3.1)	37(57.8)	11(17.2)	9(14.1)	0(0.0)	0.185
12.There are types of risk factors of heart failure	3(4.7)	4(6.3)	25(39.1)	23(35.9)	5(7.8)	4(6.3)	0.149
13.There are categories of modifiable risk factors of heart failure	1(1.6)	6(9.4)	11(17.2)	37(57.8)	6(9.4)	3(4.7)	0.019*
14. There are categories of non- modifiable risk factors of heart failure	1(1.6)	6(9.4)	7(10.9)	41(64.1)	5(7.8)	4(6.3)	0.018*
15.The most dangerous of modifiable risk factors of heart failure	1(1.6)	6(9.4)	7(10.9)	41(64.1)	5(7.8)	4(6.3)	0.014*

16. The most dangerous of non- modifiable risk factors of heart failure	3(4.7)	4(6.3)	14(21.9)	34(53.1)	5(7.8)	4(6.3)	0.045*
17. One of the most modifiable risk factors that affects heart failure patient	2(3.1)	5(7.8)	10(15.6)	38(59.4)	5(7.8)	4(6.3)	0.047*
18. One of the most non- modifiable risk factors that affects heart failure patient	1(1.6)	6(9.4)	13(20.3)	35(54.7)	5(7.8)	4(6.3)	0.308
19. Sleep apnea has been linked to the development of heart failure patient	3(4.7)	4(6.3)	22(34.4)	26(40.6)	6(9.4)	3(4.7)	0.493
20. Severe lung disease may lead to heart failure	7(10.9)	0(0.00)	33(51.6)	15(23.4)	6(9.4)	3(4.6)	0.460
21. Cardiomyopathy may increase the risk of heart failure	7(10.9)	0(0.00)	41(64.1)	7(10.9)	8(12.5)	1(1.6)	0.213

\*significant \*\*highly significant

The results of the study in table 4 show significant association between levels of education and nurse's knowledge in items stress has been worse condition of heart failure patient, hyperglycemia causes heart failure, aging has a role to increase the risk of heart failure patient, there are categories of modifiable risk factors of heart failure, there are categories of non-modifiable risk factors of heart failure, the most dangerous of modifiable risk factors of heart failure, the most dangerous of non- modifiable risk factors of heart failure and one of the most modifiable risk factors that affects heart failure patient, while the table show highly significant association in item males more than females expose to heart failure only, but the rest items show non-significant association.

**Table 5. Association between years of experiences in medical ward and nurse's knowledge about heart failure patient.**

Items  Do you know that	Years of experiences N=64						p. value chi- square
	>1		1-7		8 and more		
	know	Don't know	know	Don't know	know	Don't know	
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
1. Salty diet is worse heart failure	7(10.9)	0(0.0)	27(42.2)	0(0.0)	28(43.8)	2(3.1)	0.219
2. Hypercholesterol is worse heart failure	7(10.9)	0(0.0)	24(37.5)	3(4.7)	28(43.8)	2(3.1)	0.292
3. Sedentary lifestyle is worse heart failure	6(9.4)	1(1.6)	14(21.9)	13(20.3)	16(25)	14(21.9)	0.002**
4. High blood pressure increase exposing patient to heart failure	7(10.9)	0(0.0)	22(34.3)	5(7.8)	24(37.5)	6(9.4)	0.875
5. Cigarette smoking is leading to bad prognosis of heart failure	7(10.9)	0(0.0)	26(40.6)	1(1.6)	28(43.8)	2(3.1)	0.925
6. Stress has been worse condition of heart failure patient	6(9.4)	1(1.6)	11(17.2)	16(25)	18(28.1)	12(18.7)	0.375
7. Obesity increases the risk of heart failure patient	6(9.4)	1(1.6)	22(34.3)	5(7.8)	29(45.2)	1(1.6)	0.991
8. Hyperglycemia causes heart failure	5(7.8)	2(3.1)	9(14.1)	18(28.1)	13(20.3)	17(26.6)	0.387
9. Aging has a role to increase the risk of heart failure patient	5(7.8)	2(3.1)	16(25)	11(17.2)	20(31.3)	10(15.6)	0.511
10. Males more than females expose to heart failure	5(7.8)	2(3.1)	7(10.9)	20(31.3)	10(15.6)	20(31.3)	0.302
11. Family history is a risk of exposing patient to heart failure	4(6.3)	3(4.7)	24(37.5)	3(4.7)	23(35.9)	7(10.9)	0.032*
12. There are types of risk factors of heart failure	6(9.4)	1(1.6)	9(14.1)	18(28.1)	18(28.1)	12(18.7)	0.044*
13. There are categories of modifiable risk factors of heart failure	5(7.8)	2(3.1)	2(3.1)	25(39.1)	11(17.2)	19(29.7)	0.024*
14. There are categories of non- modifiable risk	3(4.7)	4(6.3)	2(3.1)	25(39.1)	8(12.5)	22(34.3)	0.008**

factors of heart failure							
15.The most dangerous of modifiable risk factors of heart failure	4(6.3)	3(4.7)	5(7.8)	22(34.3)	13(20.3)	17(26.5)	0.042*
16.The most dangerous of non- modifiable risk factors of heart failure	3(4.7)	4(6.3)	5(7.8)	22(34.3)	9(14.1)	21(32.8)	0.026*
17.One of the most modifiable risk factors that affects heart failure patient	2(3.1)	5(7.8)	5(7.8)	22(34.3)	12(18.7)	18(28.1)	0.065
18.One of the most non- modifiable risk factors that affects heart failure patient	2(3.1)	5(7.8)	5(7.8)	22(34.3)	9(14.1)	21(32.9)	0.048*
19.Sleep apnea has been linked to the development of heart failure patient	5(9.4)	2(3.1)	9(14.1)	18(28.1)	17(26.5)	13(20.3)	0.364
20.Severe lung disease may lead to heart failure	5(9.4)	2(3.1)	16(25)	11(17.2)	25(39.1)	5(9.4)	0.695
21.Cardiomyopathy may increase the risk of heart failure	7(10.9)	0(0.0)	23(35.9)	4(6.3)	26(40.6)	4(6.3)	0.470

\*significant

\*\*highly significant

Table 5, show significant association between years of experience in medical ward and coronary care unit and nurse's knowledge in items family history is a risk of exposing patient to heart failure, there are types of risk factors of heart failure, there are categories of modifiable risk factors of heart failure, the most dangerous of modifiable risk factors of heart failure, the most dangerous of non- modifiable risk factors of heart failure and one of the most non- modifiable risk factors that affects heart failure patient, while the result shows highly significant association in items sedentary lifestyle is worsening heart failure, there are categories of non- modifiable risk factors of heart failure , but the rest items show non-significant association.

## DISCUSSION:

The study revealed that most of the nurse's age were within age group 23-32 years and male, while the majority of them were married third of fourth of the study sample were graduated from nursing institute, also the majority of them were had experience in medical ward and CCU in the period of 1-7 years. Regarding association between age group and nurse's knowledge about heart failure, the study shows significance association in item, hypertension is worsening heart failure. A study found that hypertension had relationship to aggravate heart failure<sup>12</sup>. While the rest items show non-significant association. Concerning association between gender and nurse's knowledge about heart failure, shows significant association in item sedentary lifestyle is worsening heart failure, a study revealed that inactive or sedentary lifestyle may be worse heart failure disease<sup>13</sup>, and highly significant association in items, stress has been worse condition of heart failure, male more than female expose to heart failure, another study examined 2.1 million samples found that heart failure more prevalence from male 9.7/1000 than female 8.2/1000<sup>14</sup>, one of the most modifiable risk factors that affects heart failure, study identified that hypertension and smoking were the major risk factors among heart failure<sup>15</sup> and sleep apnea has been linked to development of heart failure. Also very highly significant in items, There are categories of modifiable risk factors of heart failure, There are categories of non- modifiable risk factors of heart failure, The most dangerous of modifiable risk factors of heart failure, study said that hypertension, diabetes mellitus, obesity, cigarette smoking, and hypercholesterol have been aggravated risk factors of heart failure<sup>16</sup>.The most dangerous of non- modifiable risk factors of heart failure and one of the most non- modifiable risk factors that affect heart failure patient. A study indicated that aging and family history were the risk of heart failure<sup>17</sup>. While the rest items, were non-significant association. The study determined the association between levels of education and nurse's knowledge about heart failure, significant association in items, stress has been worse condition of heart failure, hyperglycemia is the cause of heart failure, aging has a role

to increase the risk of heart failure, there are categories of modifiable risk factors of heart failure, there are categories of non-modifiable risk factors of heart failure, the most dangerous of modifiable risk factors of heart failure, the most dangerous of non-modifiable risk factors of heart failure, one of the most modifiable risk factors that affects heart failure A study revealed that prevalence of modifiable of risk factors such as hypertension, hypercholesterol, obesity, cigarette smoking and sedentary lifestyle were the more dangerous risk of heart failure<sup>18</sup>, and highly significant association in item male more than female expose to heart failure. While showing non-significant association in the rest items, regarding years of experience in medical ward and CCU, and nurse's knowledge about heart failure are shows significant association in items family history is a risk of heart failure, there are types of risk factors of heart failure, there are categories of modifiable risk factors of heart failure, the most dangerous of modifiable risk factors of heart failure, A study estimated that the incidence for the association between modifiable risk factors such as cigarette smoking, diabetes mellitus, hypercholesterol, hypertension and obesity and heart failure disease<sup>19</sup>. The most dangerous non-modifiable risk factors of heart failure, one of the most non-modifiable risk factors that affects heart failure, A study found that non-modifiable risk factors such as aging, gender and family history were risk factors for heart failure<sup>20</sup>, another study said that family history played a significant role in the developing of heart failure<sup>21</sup>, and showed highly significant association in items, sedentary lifestyle is worsening heart failure and there are categories of non-modifiable risk factors of heart failure. While showing non-significant association in the other items.

### **CONCLUSION:**

The majority of the samples were within young age group, male more than female; the majority of them were graduated from nursing institution. Concerning statistical association between age group and nurse's knowledge about heart failure risks shows non-significant, while shows very highly significant within gender and highly significant between nurse's knowledge with their marital status, levels of education and years of experiences in medical ward and coronary care unit

### **RECOMMENDATION:**

Training session, continuous education and work shop by world health organization should be conduct for nurses at coronary care unit and medical ward to provide best nursing care for heart failure patient. Further study should be done to find out the gap between nursing practices and theory topics.

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