



**Ministry of higher Education and Scientific**

**Research University of Babylon College of Nursing**



**Study the Effect of Exam Stress and Some  
Demographic Factors on Student's Blood Pressure in  
Babylon University**

**Graduation project Submitted to the  
Faculty of Nursing University of Babylon  
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Bachelor's Degree in Nursing -**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(....يرفع الله الذين امنوا منكم

والذين اوتوا العلم درجات)

صدق الله العلي العظيم

(المجادلة الاية 11)

## الاهداء

أهدي البحث إلى الغائب الحاضر في قلوبنا إلى الملهم السند دائم من وقف بجانبني  
وساعدني للوصول إلى هذا مرحلة رغم صعوبات  
ومنقذ الإنسان من الحيرة والضلالة بأسط الأمن والعدالة على وجه الأرض  
الأمام المهدي  
الحجة بن الحسن العسكري عجل الله فرجه الشريف  
مولاي تفضل عليّ بالقبول

## الشكر وتقدير

الحمد حتى يبلغ الحمد منتهاه فإليها ينسب الفضل كله  
وبعد الحمد من لم يشكر المخلوق لم يشكر الخالق  
اتوجه الى مشرف البحث الأستاذة الدكتورة بتول أبراهيم بالشكر والتقدير  
واستسمحه عذراً لعدم وجود كلمات تصف شكرنا لها  
وبعدها الشكر موصول لكل اساتذتي الذين تتلمذ على أيديهم في كل مراحل الدراسة  
حتى اتشرف بوقوفي أمام حضراتكم اليوم

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## ❖ Abstract

**Purpose:** This study investigated the effect of a university exam period on blood pressure (BP) among healthy students. **Materials and methods:** One hundred healthy normotensive university students participated in the test. Blood pressure values was recorded once before the exam and after four weeks of the ending of their exams when the academic pressure is expected to decrease. The participant students were asked to fill the questionnaire that taked from previous study and validated by three health education experts and reliability was determined and by using the retest method digital sphygmomanometer was used to monitor and record actual systolic blood pressure (SBP) and diastolic blood pressure (DBP). **Results:** the result revealed that 88 (88%) students arrange their age between 18-20 years and 12 students (12%) their age were 21-23 years. These students were 17% male and 83% female, Most of them ( 97 % were single ). BMI values of 78 % were normal weight (19.8–26 kg/m<sup>2</sup>), 12 % were overweight(26-299 kg/m<sup>2</sup>) and only 9 cases were underweight whom with age less than 19.8 kg/m<sup>2</sup> , as well as this result revealed a significant relationship between both of systolic and diastolic pressure with the effect of exam stress on nursing students and there is the same significant relationship between systolic pressure of students with both their age and gender. **Conclusions:** exam period had enough stress effect on blood pressure and may be act as a higher risk even in healthy young people.

Key words: exam stress; healthy; student, blood pressure

## **Introduction**

A primary hypertension (HT) starting at adulthood seems to begin at a younger age [1]. Some data also suggest significant correlation between HT in childhood and later atherosclerosis [2]. Blood pressure (BP) values, as well as the weight of childhood, may play an important role in the development of HT in adulthood [3]. The role of stress in the development of primary HT has been investigated for a long time. It was assumed very early that the sympathetic nervous system may be the potential link between stress and BP elevation. It was also early evaluated that norepinephrine level increases in the plasma due to every sort of stress [4]. Physiological adaptation to a stress situation involves the activation of the autonomic nervous system. A stress situation may induce an increase in heart rate (HR) and BP [5].

### Objective of the study:

To find out if there was any effect of exam stress on systolic or diastolic blood pressure related to nursing students in Babylon university

### Methodology:

One hundred healthy normotensive university students participated in the test. Blood pressure values was recorded once before the exam and after four weeks of the ending of their exams when the academic pressure is expected to decrease. The participant students were asked to fill the questionnaire that taken from previous study and validated by three health education experts and reliability was determined and by using the retest method digital sphygmomanometer was used to monitor and record actual systolic blood pressure (SBP) and diastolic blood pressure (DBP).

### Statistical analysis:

Descriptive statistical method as frequency and percentage ,correlation test and Chi square test were used By using SSPS program version 23.



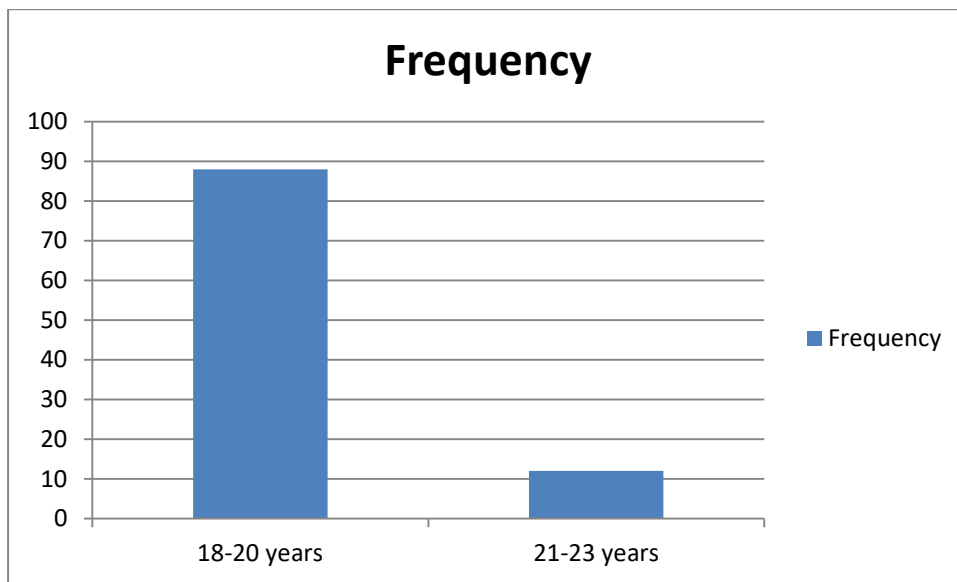
## Result:

Table( 1) , one hundred nursing students without any known internal disease were asked to participate . 88 students arrange their age between 18-20 years and 12 students their age were 21-23 years. These students were 17 male and 83 female, Most of them ( 97 case were single ). BMI values of 78 students were 19.8–26 kg/m<sup>2</sup>, 12 cases were overweight 26-299 kg/m<sup>2</sup> and only 9 cases were underweight whom with age less than 19.8 kg/m<sup>2</sup> .

**Table 1: Distribution of demographic characteristics**

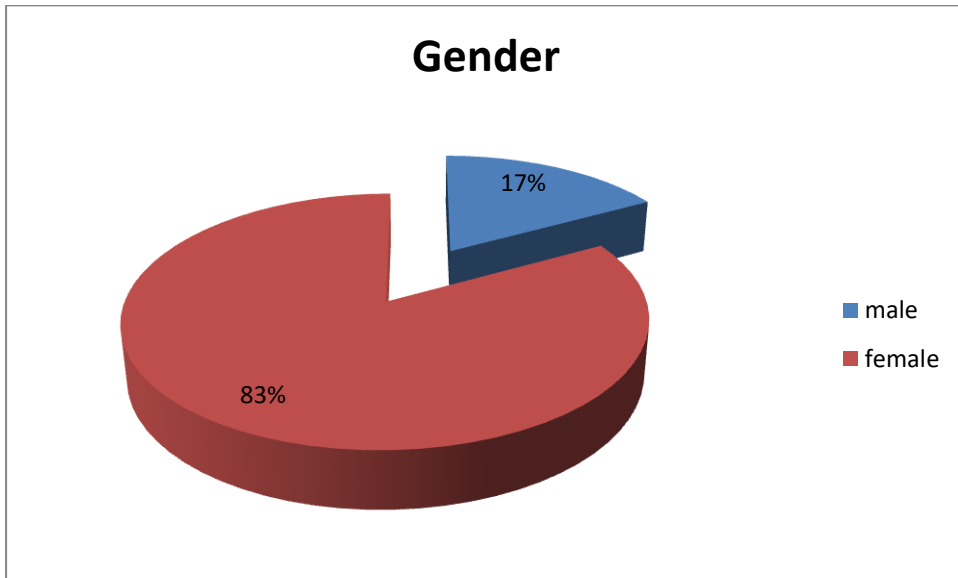
Variables		Frequency	Percent
Age	18-20 years	88	88.0
	21-23 years	12	12.0
	Total	100	100.0
Gender	male	17	17.0
	female	83	83.0
	Total	100	100.0
Marital status	single	97	97.0
	married	3	3.0
	Total	100	100.0
BMI	normal weight	78	78.0
	over weight	12	12.0
	nderweight weight	9	9.0
	Total	100	100.0

Figure 1 showed that 88 % of students their age were between 18-20 years and 12 % of them were at age 21-23 years.



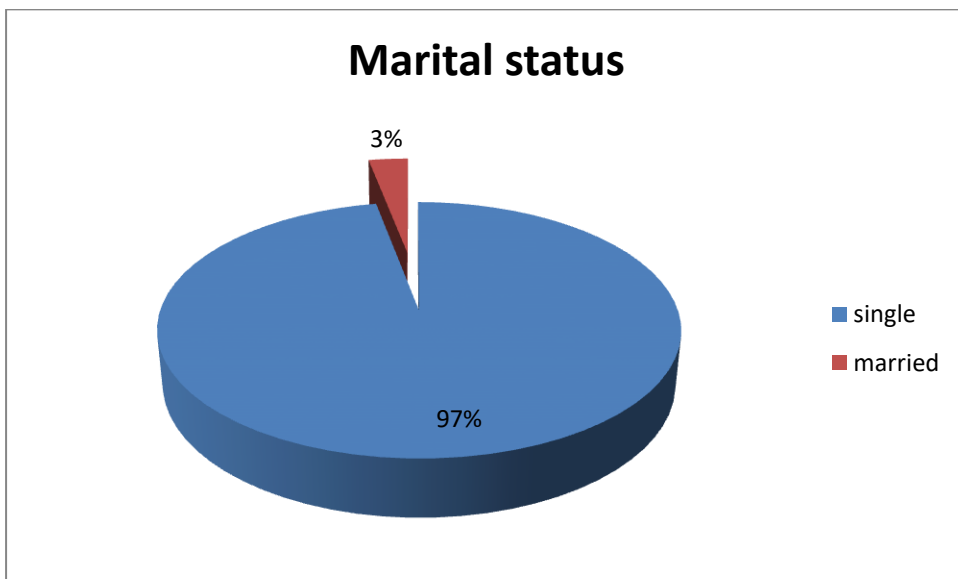
**Figure 1: Distribution of study sample related to age**

The result revealed that these students were 17 % male and 83 % female as show in figure 2.



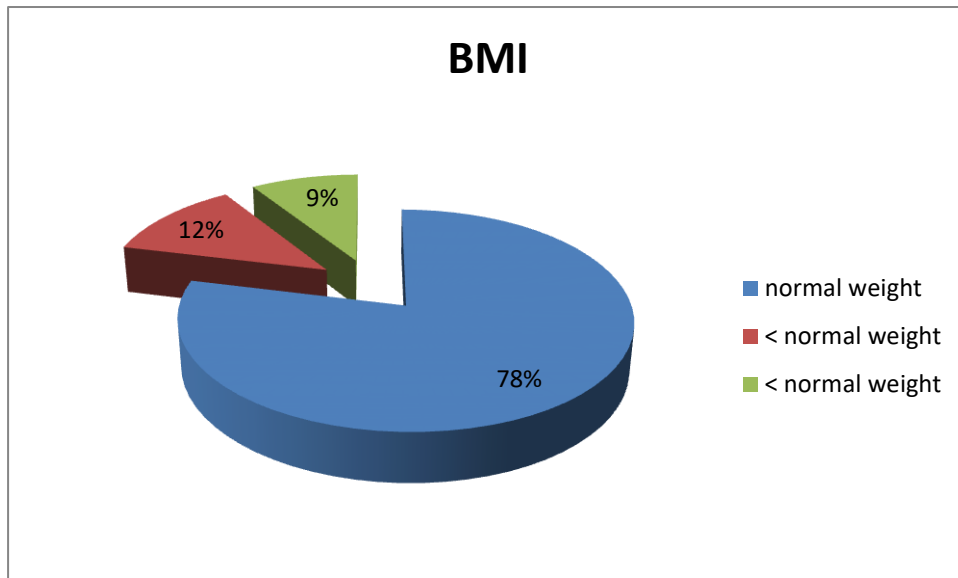
**Figure 2: Distribution of study sample related to gender**

Figure 3 show the majority of study sample 97% were single.



**Figure 3: Distribution of study sample related to marital status**

BMI values of 78 students were 19.8–26 kg/m<sup>2</sup>, 12 cases were overweight 26-299 kg/m<sup>2</sup> and only 9 cases were underweight whom with age less than 19.8 kg/m<sup>2</sup> , as show in figure 4.



**Figure 4: Distribution of study sample related to BMI**

Normal weight	19.8-26	kg/m <sup>2</sup>
Overweight	26-29	kg/m <sup>2</sup>
Underweight	less than 19.8	kg/m <sup>2</sup>

Table 2 showed a significant relationship between both of systolic and diastolic pressure with the effect of exam stress on nursing students .

**Table 2: relationship between systolic and The effect of exam stress.**

Parameter	Chi square	Df	p. value
The effect of exam stress	39.919 <sup>a</sup>	41	<b>.025</b> <b>s</b>
Systolic			
The effect of exam stress	23.845 <sup>a</sup>	41	<b>.015</b> <b>s</b>
Diastolic			

Table 3 Show significant relationship between systolic pressure of students with both their age and gender.

**Table 3: relationship between systolic and age**

Parameter	Chi square	Df	p. value
Systolic	.941	1	<b>.005</b> <b>s</b>
Age			
Diastolic	.753	1	.099
Age			
Systolic	5.317 <sup>a</sup>	1	<b>.021</b> <b>s</b>
Gender			
Diastolic	3.284 <sup>a</sup>	1	.070
Gender			
Systolic	.304 <sup>a</sup>	1	.582
Marital status			
Diastolic	1.576 <sup>a</sup>	1	.209
Marital status			

## **Discussion:**

An acute mental stress situation may increase the BP and the cardiac output in healthy individuals. Jern et al. [6] found that central type body fat distribution comes with increased systemic vascular resistance during mental stress. It is well-known that emotional stress can cause Blood Pressure elevation. In such cases, plasma dopamine level increased immediately after the stress. It lasted only for a short time. Plasma samples examined later show that dopamine returns to its normal range [7]. A slight but repetitive dopamine response to emotional stress downregulates renal dopamine-2 receptors, which leads to salt retention. Salt retention is one of the risk factors of hypertension [8]. In clinical trials, workplace stress is defined as a combination of higher job strain with low decision latitude at the workplace. The higher is the first factor and the lower is the second one, the stress is more intense. There are relatively a small number of prospective studies investigating the association between the effects of workplace stress and BP changes in the long term and their results are not concordant. In another study, 3200 young adults (age 20–32 years) were followed for 8 years and still no correlation was found between the chronic workplace stress and the incidence of hypertension [9]. However, the higher job demand already correlated to higher incidence of hypertension. In another study, 6729 white collar workers were followed for 7.5 years. During this period, a moderate rise could be observed in the incidence of HT independently of gender. Nevertheless, SBP alone elevated significantly and only among men [10]. While the result of our study revealed that there the exam stress had a significant effect on both systolic and diastolic pressure, this result may be due to the effect of exam stress in increasing blood dopamine level and its repetitive increase then its returning to its normal level which correlate with salts retention and increasing systolic and diastolic blood pressure.

## Conclusion and recommendation:

### Conclusions:

1-Exam stress has a significant effect on systolic and diastolic blood pressure of nursing students in Babylon university.

2-Systolic blood pressure has a significant correlation with both of age and gender of nursing students.

### Recommendation

Future studies are required to verify if this stressful situation affects their cardiovascular risks in their later age

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الخلاصة:

الغرض: بحثت هذه الدراسة في تأثير فترة الامتحان الجامعي على ضغط الدم بين الطلاب الأصحاء. المواد والطرق: شارك في الاختبار مائة طالب جامعي يتمتع بصحة جيدة. تم تسجيل قيم ضغط الدم مرة واحدة قبل الامتحان وبعد أربعة أسابيع من انتهاء امتحاناتهم حيث من المتوقع أن ينخفض الضغط الأكاديمي. طُلب من الطلاب المشاركين ملء الاستبيان الذي تم الحصول عليه من الدراسة السابقة والتحقق من صحته من قبل ثلاثة خبراء في التنقيف الصحي وتم تحديد الموثوقية وباستخدام طريقة إعادة الاختبار ، تم استخدام مقياس ضغط الدم الرقمي لمراقبة وتسجيل ضغط الدم الانقباضي الفعلي (SBP) وضغط الدم الانبساطي (DBP). النتائج: أظهرت النتائج أن ٨٨ (٨٨٪) طالبًا يرتبون أعمارهم بين ١٨-٢٠ عامًا وأن ١٢ طالبًا (١٢٪) تراوحت أعمارهم بين ٢١ و ٢٣ عامًا. كان هؤلاء الطلاب ١٧٪ ذكور و ٨٣٪ إناث ، معظمهم (٩٧٪ كانوا عازبين). كانت قيم مؤشر كتلة الجسم ٧٨٪ عبارة عن وزن طبيعي (١٩.٨-٢٦ كجم / م ٢) ، و ١٢٪ يعانون من زيادة الوزن (٢٦-٢٩٩ كجم / م ٢) و ٩ حالات فقط يعانون من نقص الوزن والذين تقل أعمارهم عن ١٩.٨ كجم / م ٢ ، بالإضافة إلى هذه النتيجة كشف وجود علاقة ذات دلالة إحصائية بين الضغط الانقباضي والضغط الانبساطي مع تأثير إجهاد الامتحان على طلاب التمريض ، وهناك نفس الدلالة بين الضغط الانقباضي للطلاب في كل من العمر والجنس. الاستنتاجات: كان لفترة الاختبار تأثير ضغط كافٍ على ضغط الدم وقد يكون بمثابة خطر أكبر حتى لدى الشباب الأصحاء.

الكلمات المفتاحية: إجهاد الامتحان ؛ صحيح؛ طالب ضغط الدم



## دراسة تأثير جهد الامتحان وبعض العوامل الديموغرافية على ضغط الدم لطلاب جامعة بابل

مشروع تخرج مقدم الى كلية التمريض جامعة بابل ضمن متطلبات الحصول على  
درجة البكالوريوس في التمريض

اعداد الطلبة

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