

CARDIOVASCULAR RISK FACTORS AMONG COLLEGE STUDENTS: KNOWLEDGE, PERCEPTION AND RISK ASSESSMENT

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Background

- Young adults unrealistic or uninformed about their health and eating habits.
- 1/3 of this population is unaware of risk
- Plaque formation begins in young adulthood
- Approximately 35% of college students are overweight or obese
- College students lack information on CVD.
- Why college students?
 - Similar education background in a common setting
 - Transition from home to college environment

Purpose

To assess the general knowledge and perception (perceived susceptibility and perceived severity) among a college population of young adults regarding cardiovascular risk factors and to screen for individual cardiovascular risks



Aims

1. To describe non-modifiable and modifiable CV risk factors in college students
2. To examine co-occurrence of CV risk factors in college students
3. To examine the relationships among knowledge, perceived susceptibility, perceived severity, and the 10-year and 30-year CVD risk in college students

Aims

4. To examine the influence of college students' characteristics on the risk assessments
5. To cluster subgroups of college students for CV risk based on socio-demographics, non-modifiable and modifiable risk factors

Methods

- A cross-sectional, descriptive research study



Recruitment

- University of Nebraska-Lincoln
 - University Health Center
 - Student Union

Measures

- Socio-demographics
- Heart Disease Fact Questionnaire
- Health Beliefs Related to Cardiovascular Disease
- Biometrics (random blood glucose, lipid panels, height, weight, blood pressure)
- Risk assessment (Pooled Cohort risk equations & 30-year CVD)

Sample

- Convenience sampling
- Inclusion criteria: ages 19 to 39, enrolled at UNL
- Exclusion criteria: diagnosed with CVD such as myocardial infarction, stroke or CHD.

Sample

- 158 participants completed the research for data analysis.
- Average age 24.33 ± 4.61 years old
- Majority were male ($n=72, 54.4\%$), single ($n=131, 82.9\%$), and had insurance coverage ($n=146, 93.0\%$).
- Race/ethnic distribution:
 - White 63.1% ($n=99$) ; Asian/Pacific Islander 13.4% ($n=21$)
 - African American 8.3% ($n=13$); Hispanic or Latino 7.6% ($n=12$)
 - Native American 1.3% ($n=2$) ; Other 6.4% ($n=10$)

Results Aim 1. To describe non-modifiable and modifiable CV risk factors in college students

Reported

- 51 (32.3%) Family history of heart disease
- 12 (7.6%) Hypertension
- 11 (7.0%) Current smokers
- 2 (1.3%) Diabetes

Measured

- 71 (44.9%) Overweight/obese
- 20 (12.7%) Hypertension
- 6 (3.8%) Diabetes
- 5 (3.2%) Hyperlipidemia

Results Aim 1. To describe non-modifiable and modifiable CV risk factors in college students

- Average DBP, glucose, total cholesterol, LDL-C, HDL-C, and triglycerides were all within normal range.
- Average SBP in prehypertensive stage (122.9)
- Average BMI 25.7
- Average lifetime risk assessment 31.4%
- Average 30-year CVD 4.8% (full) and 2.3% (hard)

Results Aim 1. To describe non-modifiable and modifiable CV risk factors in college students

- Physical activity most frequently reported were moderate levels ($n=65$, 41.1%)
- Most reported being active 3-5 times per week ($n=81$, 51.3%)
- Half ($n=79$, 50.0%) eat out occasionally (2-3 times per week)
- About 81% of the participants' drink sugary beverages
- 58 (36.7%) reported occasionally eat red meats

Aim 2. To examine co-occurrence of CV risk factors in college students

- 75 (47.5%) no CV risk factors
- 57 (36.1%) at least one risk factor
- 22 (13.9%) two risk factors
- 4 (2.5%) three risk factors.

Total 34 risk factors that co-occurrences, 30 of them involved being overweight/obese.

Aim 2. To examine co-occurrence of CV risk factors in college students

Co-Occurrence of Risk Factors

	N	% of sample
Overweight & Hypertension	17	10.76%
Overweight & Smoking	6	3.80%
Overweight & Diabetes	4	2.53%
Overweight & Hyperlipidemia	3	1.90%
Diabetes & Hypertension	2	1.27%
Hypertension & Smoking	1	0.63%
Diabetes & Hyperlipidemia	1	0.63%
Hypertension & Hyperlipidemia	0	
Hyperlipidemia & Smoking	0	
Diabetes & Smoking	0	

Note: N = 26 had two or more risk factors.

Aim 3. To examine the relationships among knowledge, perception and risk assessments

- HDFQ mean score was 13.9 (median score 15.0) ranges from 6-16
- HBCVD mean score was 20.8 (median score 21.0) ranges from 13-33

Aim 3. To examine the relationships among knowledge, perception and risk assessments

- Knowledge of CV risk factors and the lifetime risk assessment were positively associated ($\rho=0.172$, $p=0.048$)
- Perception of CV risk factors was positively association with the 30-year full CV risk assessment ($\rho=0.157$, $p=0.048$)
- No significant relationships between knowledge and perception of CV risk factors ($p=0.191$)

Aim 4. To examine the influence of college students' characteristics on the risk assessments

- Significant differences found in the 10-year and 30-year CV risk assessments between genders
- Family history of heart disease demonstrated a significant differences in the full 30-year CV risk assessment ($p=0.022$)
- No differences between White and non-White

Aim 5. To cluster subgroups of college students for CV risk based on socio-demographics, non-modifiable and modifiable risk factors.

Cluster Analysis Subgroups

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	p-value
	<i>n</i> = 65	<i>n</i> = 5	<i>n</i> = 54	<i>n</i> = 3	<i>n</i> = 15	<i>n</i> = 8	<i>n</i> = 1	
Gender								<0.0001
Male	19	5	44	2	7	7	0	
Female	46	0	10	1	8	1	1	
Race/Ethnicity								<0.0001
White	29	4	46	2	8	4	1	
Non-White	36	1	8	1	7	4	0	
Marital status								0.035
Married/Living Together	18	1	4	0	2	0	0	
Single/Divorced	47	4	50	3	13	8	1	
Insurance (Yes)	65	5	54	3	6	7	1	<0.0001
PMH - Heart Problems (Yes)	0	0	0	3	0	0	0	<0.0001
PMH - Cancer (Yes)	0	0	0	0	0	0	1	0.061
Family History of Heart Disease (Yes)	19	2	22	1	3	3	0	0.667
Taking BP Medication (Yes)	0	5	0	0	0	0	0	<0.0001
Diabetic (Yes)	0	0	0	0	0	5	0	<0.0001
Overweight/Obese (Yes)	8	4	38	2	8	6	1	<0.0001
Hypertension (Yes)	0	3	12	1	1	2	0	<0.0001
Hyperlipidemia (Yes)	0	0	0	0	0	4	0	<0.0001
Current Smoker (Yes)	0	0	1	0	10	0	0	<0.0001
Physical Activity		<i>M</i> =3.60		<i>M</i> =3.35				0.05
Eat Out								0.079
Drink Sugary Beverages								0.198
Eat Red Meat			<i>M</i> =2.90			<i>M</i> =2.60	<i>M</i> =3.00	0.001

Note: PMH = past medical history; *M* = mean values from mean plot of ANOVA

Conclusion

1. College students are a targeted population that could benefit from CV risk reduction since more than 50% of our study population had one or more CV risk factors and should be screened routinely.
2. The 30-year CVD risk assessment versus the 10-year CVD risk assessment should be used in college students because the 10-year CVD risk assessment is limited in young adults and will only generates a 10-year risk estimates for individuals between the ages 40 to 79.
3. High risk groups through clustering technique can be used to identify groups of college students to target for interventions.

Implications/Recommendations

- This population is not being aggressively screened or treated
- Opportunity for health professional programs in Colleges to work with health centers and campus administration by instituting risk factors modification programs or events in this population

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Thank You!!!