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Dietary Habits of Patients with Chronic Medical Conditions During COVID-19

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Background

- Over the past two years, the COVID-19 pandemic has forced drastic changes in various aspects of normal life for millions world-wide.
- As of April 2022, there have been over reported 80.8 million cases and 989,000 reported deaths.
- At the start of the COVID-19 pandemic, there were numerous societal changes occurred such as social distancing protocols, mask recommendations and restrictions in public spaces.
- With such drastic changes to normal life, investigators began examining how dietary habits in the general population could have been affected, but not investigated the impacts on patients with chronic medical conditions (CMC).
- Prior to major vaccination efforts, in February of 2021, the CDC noted that of the 548,971 confirmed deaths, 96.1% of those deaths where among individuals with pre-existing chronic medical conditions.
- Patients with chronic medical conditions, have strict regimented dietary patterns and nutritional needs.

Study Design

GOAL:
Use this information to help address the needs of patients with chronic medical conditions and address factors that can influence dietary habits

299 survey questionnaires collected from online surveys and in-patient settings such as from primary care physicians at Cardiology Associates (Lanham, MD) and at health fairs at American Diversity Group Events (Columbia, MD).

Part 1: Demographics
Age
Sex
Race and Ethnicity
Education level
Employment Status
Martial status
Percent time spent at home.
Residence

Part 2: General Health Characteristics
What is your BMI?
How has your weight changed?
Have you tired a diet or supplement?
What chronic medical condition(s) do you have?

Part 3: Lifestyle habits [worse (-8) to best (+8)]
Have you decreased, increased or had no change in:

Physical activity?
Sleep?
Reading?
Socializing?
Smoking?
Eating?
Watching TV?
Exercising?

Part 4: Food Attitudes: [best (-6) to worse (+6)]
Indicated increase, decrease, or no change on statements such as:
- *I find that when I start eating certain foods, I end up eating much more than planned*
- *I find myself continuing to consume certain foods even though I am no longer hungry*
- *I eat to the point where I feel physically ill*
- *I spend a lot of time feeling sluggish or fatigued from overeating*
- *I find myself constantly eating certain foods thought the day*
- *My behavior with respect to food and eating causes significant distress*

Part 5: Dietary habits [worse(-37) to best(+37)] and Frequency of No change [more (0) to less (+37)]
Indicated if you have had increase, decrease or no change in the following:

Energy Dense (high sodium, added sugars and total fat):
cheese, butter/margarine, fruit juice, vegetable/tomato juice, processed meats, red meats, refined grains (e.g., white bread/rice), chips, sweets, alcohol (e.g., beer, wine, spirits), nut spreads, and carbonated added sugar beverages

Nutritionally Dense (low sodium, added sugars and total fat):
milk and yogurt, fresh/frozen/canned fruits and vegetables, chicken and fish, whole grains (e.g., whole wheat/brown bread/rice), water, non-carbonated no added sugar beverages, immune-enhancing beverages, coffee/tea, and protein shakes

Research Questions

- **How did the lifestyle habits** of participants with chronic medical conditions different from the general public?
- **What type of foods** did participants with chronic medical conditions consume?
- **How different was the diet** of participants with chronic medical conditions over the duration of the COVID-19 pandemic compared to the general population?
- **Did** participants with chronic medical conditions, **try new diets or supplements** and did this differ from the general population?
- **How did weight change** for patients with chronic medical conditions compared to the general population?
- **What type of relationship** do participants with chronic medical conditions have with **food attitudes and consumption habits relative to the general population?**

Results

The majority were African American or Black (44.5%), female (52.2%), held a high school graduate, diploma, or the equivalent or bachelor's degree (24.7% and 29.8%, respectively), and were employed full-time (52.5%). The sample's age range varied, with a slight majority between the ages of 50 to 59 years old (23.4%). Half of the participants were married (53.5%), lived in The South Atlantic region (22.9%), lived with at least two persons (26.8%), and had stayed in their homes 75% to 95% of the time during the COVID-19 pandemic (42.1%)

General Health Characteristics	No. of Responses (%)
BMI (kg/m^{2})	N= 299
<18	4 (1.3%)
18.5-24.9	103 (34.3%)
25-29.9	100 (33.4%)
30-34.9	69 (23.1%)
35-39.9	15 (5.0%)
40-44.9	3 (1.0%)
>45	5 (1.7%)
Medical Conditions	N= 238
Chronic kidney disease	20 (6.7%)
COPD (chronic obstructive pulmonary disease)	8 (2.7%)
Obesity (BMI of 30 or higher)	32 (10.7%)
Immunocompromised state (weakened immune system) from solid organ transplant	9 (3.0%)
Serious heart conditions (heart failure, coronary artery disease, or cardiomyopathy)	79 (26.4%)
Sickle cell disease	6 (2.0%)
Type 2 diabetes	65 (21.7%)
None of the above	61 (20.4%)
Other	19 (6.4%)

	General Pop N=61		CMC N=238					
Variable	**Mean**	**SD**	**Mean**	**SD**	**T**	**Df**	**P value**	**Cohen's D point estimate**
Weight Change	.33	.811	.18	.766	1.322	297	.187	.190
Diet started	.44	.501	.47	.500	-.448	297	.655	-.064
Nutritional supplement consumption	.49	.504	.45	.499	.530	297	.597	.076
Food Attitudes	.48	3.031	-.71	3.450	2.460	297	.014	.353
Lifestyle Habits	-.87	2.947	-1.00	2.816	.311	297	.756	.045
Dietary Habits	2.41	5.248	3.69	5.086	-1.747	297	.082	-.251
Frequency of No change (DH)	14.30	8.878	11.75	7.545	2.62	297	.024	.325

	General Pop N=61		CMC N=238					
Food item	**Mean**	**SD**	**Mean**	**SD**	**T**	**Df**	**P value**	**Cohen's D point estimate**
French fries and potatoes	.02	.719	-.31	.701	3.194	297	.002	.458
Potato Chips Salty Snacks	.08	.759	-.25	.732	3.157	297	.002	.453
Sweets	-.07	.704	-.30	.706	2.339	297	.020	.336
Peanut Butter and Nut Spreads	.13	.695	-.08	.713	2.030	297	.043	.291
Low Calorie Beverages	.13	.695	-.16	.614	3.166	297	.002	.454
Margarine and Butter	.03	.752	-.19	.744	2.113	297	.037	.303
Vegetable and Tomato Juice	.07	.704	.41	.722	-3.367	94.938	<.001	-.476

Conclusions and Future Research

- There are **no statistically significant differences in lifestyle habits, in initiating a new diet or supplement, in weight change, or in dietary habit scores** between CMC participants and the general population.
- CMC participants **had better beliefs, thoughts, feelings, behaviors and relationship with food (i.e., Food attitudes)** compared to the general population which indicate that their consumption habits where hardly influenced by the COVID-19 pandemic.
- CMC participants showed **little change in their diet prior to and during the COVID-19 pandemic** (lower freq. no change in DH scores) compared to the general populations and where able to meet their restrictive dietary and nutritional needs with little influence from the societal circumstances.
- Even though CMC participants experience less change in their overall diet, they **did have significantly lower consumption of certain energy dense foods (i.e., unhealthier foods) compared to the general population**. These included **sweets, French fries, potato chips/salty snacks, peanut butter/ nut spreads, and margarine and butter**.
- Future Research should work to change the classification of certain foods such as tomato juice, which can be nutritionally dense or energy dense depending on the type. This likely helps explain why CMC participants indicated high consumption in this energy dense food. Moreover, future research, should investigate how SES factors, subcategories of chronic conditions, and race and ethnicity impacted dietary habits during the COVID-19 Pandemic.

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