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The Effect of Medically Tailored Meal Program Length on Malnutrition Risk

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Introduction

The Metropolitan Area Neighborhood Nutrition Alliance (MANNA) provides medically tailored meals (MTMs) to individuals in the Philadelphia area with nutritional risk and chronic illness such as cancers, renal disease, heart disease, diabetes, and HIV/AIDS. Registered dietitians prescribe 3 or 6 months of MTMs depending on risk severity. This study investigates the impact of MTM prescription length on malnutrition risk.

Methods

Demographic, health, and program enrollment data for clients who received ≥ 2 months of MTMs and completed the intake and follow-up Malnutrition Screening Tool (Figure 1) from 2020-2022 were extracted from client records and entered in REDCap. Paired t-tests and chi-square tests were used to assess change in MST scores within the 3-month and 6-month prescription groups and the difference in change between groups.

Figure 1. Malnutrition Screening tool (MST) used to assess malnutrition risk at intake and follow up. MST scores 0-1 = low risk, scores 2-5 = high risk

Malnutrition Screening Tool (MST)	
Q1. Have you lost weight recently without trying?	
No	0
Unsure	2
If yes:	
2-13lb	1
14-23lb	2
24-33lb	3
34 or more	4
Weight loss Score=_____	
Q2. Have you been eating poorly because of a decreased appetite?	
No	0
Yes	1
Appetite Score=_____	
MST score= Weight loss + appetite score	

Results

Table 1. Descriptive characteristics of 3-month and 6-month prescription groups. The 3-month prescription group (n=387; 41%) and 6-month prescription group (n=554; 59%) were similar in sociodemographic variables. The 6-month group had higher prevalence of cancer and malnutrition risk at intake.

Characteristics	3-month (n=387)	6-month (n=554)
Sociodemographic		
Age 65+	52.7% (204)	50.9% (282)
Female	55.8% (216)	51.4% (285)
Black	62.8% (243)	60.5% (335)
Hispanic	9.6% (37)	7.4% (41)
Medicaid	33.6% (130)	31.6% (175)
Food insecure	66.7% (258)	63.7% (353)
Health		
HIV/AIDS	8% (31)	5.8% (32)
Cancer	17.3% (67)	35.2% (195)
Diabetes	41.6% (161)	43.7% (242)
Kidney disease	24.5% (95)	25.5% (141)
Cardiovascular disease	60.2% (233)	59.2% (328)
Obese	35.2% (136)	33.4% (185)
Hypertensive	32.1% (124)	35.0% (194)
Malnourished	45.2% (175)	60.3% (334)

Figure 2. Mean MST scores at intake and follow-up of the 3-month and 6-month prescription groups. There was a significant reduction in MST scores among clients within each group (p<.001).

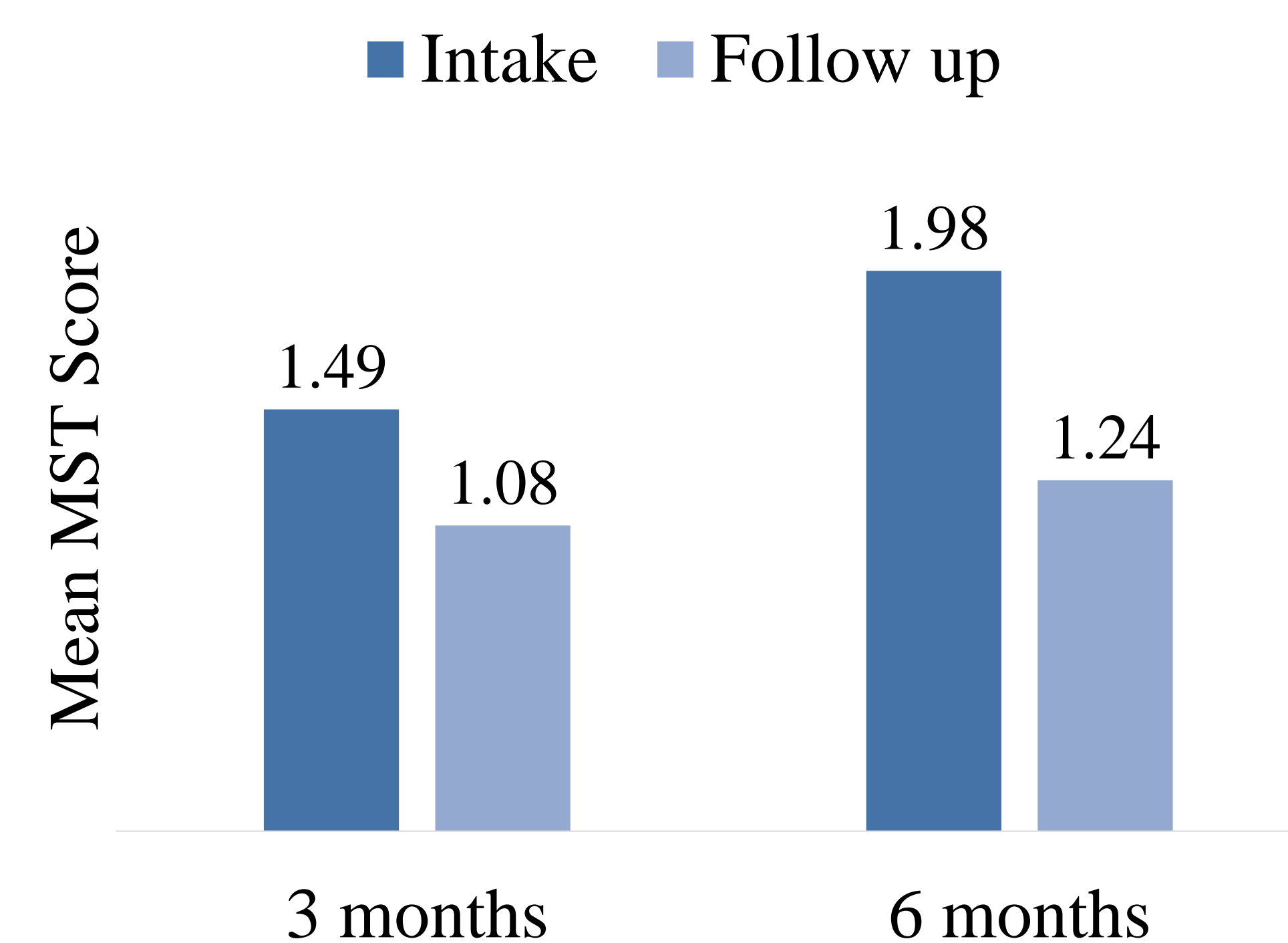
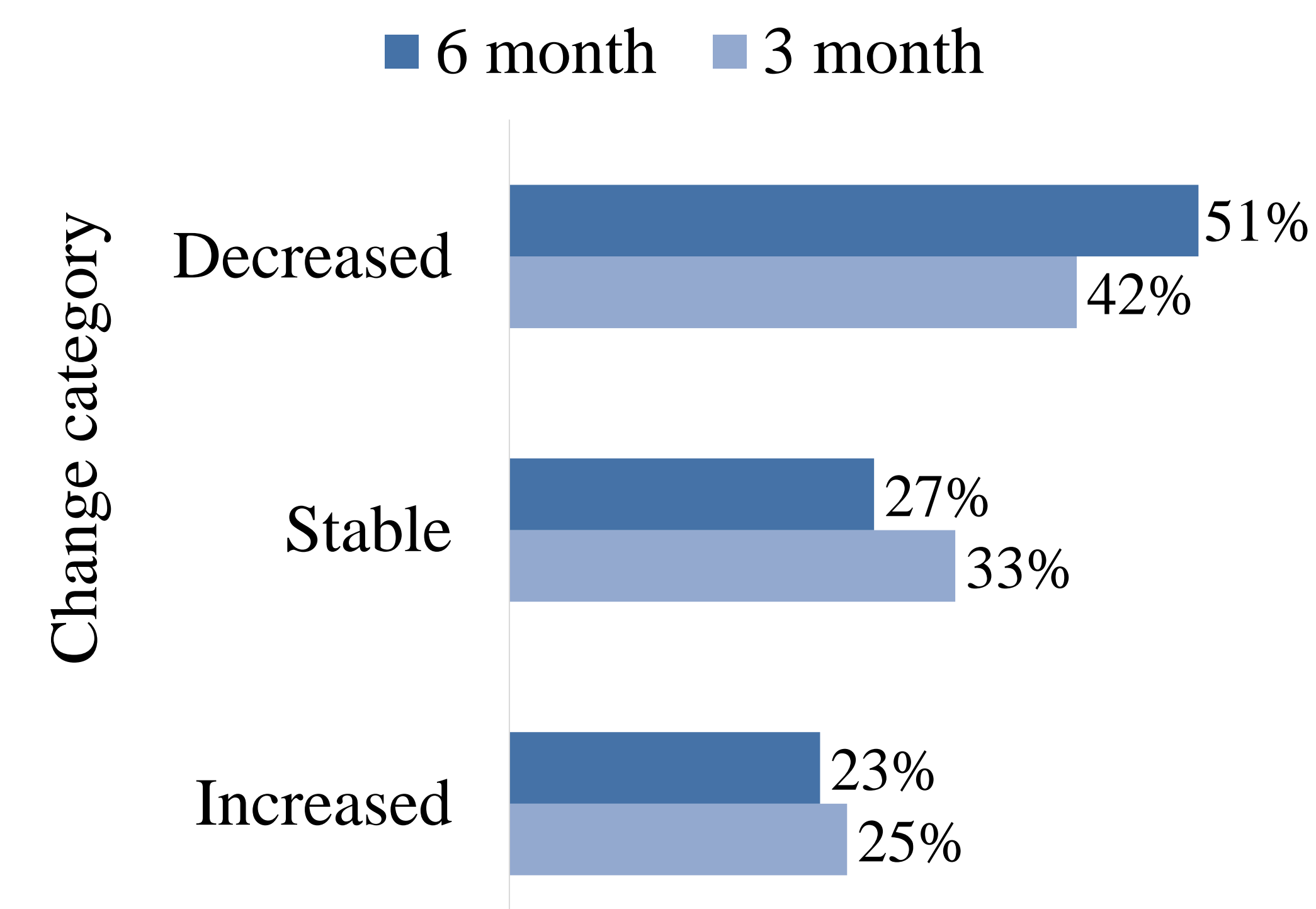


Figure 3. Percentage of clients who experienced decreased, stable, or increased MST score by prescription group. A greater proportion of clients experienced a decrease in malnutrition risk in the 6-month group compared to the 3-month group (p=.019).



Discussion

Clients who were prescribed 6 months of MANNA MTMs were more likely to be malnourished and have cancer at intake. This reflects how MANNA dietitians determine prescription length; longer duration of services are prescribed for clients with more severe health and nutritional risk factors. In addition, cancer is associated with unintended weight loss and may precipitate malnutrition. No other social or clinical factors differed between the 3-month and 6-month groups.

Malnutrition risk decreased among individuals in both the 3-month and 6-month prescription groups, indicating that the MTM program is associated with nutritional stability regardless of prescription length. However, there was a greater proportion of clients who experienced reduced malnutrition risk in the 6-month group compared to the 3-month group. This difference may indicate that longer duration of services is associated with greater reduction in risk. Additionally, because the 6-month group has a higher prevalence of cancer, results may indicate that the program has a greater impact on malnutrition risk among clients experiencing unintended weight loss associated with cancer vs. other disease states.

This observational study is limited by lack of a control group to help determine intervention effects. Additionally, meal consumption was not assessed which may impact outcomes.

Future Research

Future research is needed to determine the clients' adherence to the MTM program in order to further study the effects of MANNA's MTM service on malnutrition.

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