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ReachMD

www.reachmd.com

info@reachmd.com

(866) 423-7849

Supermarket and Web-Based Intervention Targeting Nutrition – SuperWIN

Dr. Steen:

Hi, my name is Dylan Steen. I'll be talking to you today about the supermarket and web-based intervention targeting nutrition. Our collaborator for this trial was the Kroger Company, the largest US supermarket chain. They provided part of the funding, the storing clinic space used for the study, the study dieticians who served as research coordinators, and the purchasing data which guided the interventions. 75% of Americans have poor dietary quality. The American Heart Association and other groups have asked for novel ways to address the gap. These include sponsor research with retailers, studies of online shopping, and studies of nutrition applications. If you look at the bottom you can imagine that if we just changed the environment where we deliver dietary education we might be able to improve the circumstance.

This is the basic study design. If you start at the top and we go down, we recruited primary care network patients. They were all adults. They had to have at least one cardiovascular risk factor, obesity, hypercholesterolemia, and, or hypertension. They had to be an existing shopper at one of our Kroger Supermarkets that we were using in the study. They could not, however, be an online Kroger shopper, and each participant had to be willing to follow the DASH diet, which we taught throughout the study. After our brief run in period, each participant received a medical and nutrition therapy visit. That's considered standard of care. Then they were subsequently randomized to one of three groups. Either the control, which received no further education, or strategy one or strategy two, each of which received six additional education visits, and I'll describe those on the subsequent slide. Assessments were done at three and six months, and the location for all these visits and assessments was the participant's preferred Kroger Supermarket location. Our analysis cohort included 247 participants.

Here are the three groups. Starting on the left, the medical nutrition therapy group was considered a standard of care. We, however, greatly enhanced this for SuperWIN. We provided the dieticians and participants dietary intake figures from each participant, and, of course, the dietician was a supermarket based dietician, so well understood the very store at which the participant had been shopping. In strategy one, we added on top of this, purchasing data guided, in the aisles educational visits. There were six of these sessions. You can see there an image of the purchasing data used to guide each session, as well as a dietician and a participant in the aisles of the store. In strategy two, we further added to this, step wise introduction and training on online shopping, store pick-up, home delivery, and a couple nutrition applications to promote better purchases and better meal and recipe planning.

Here is an image of one of the purchasing reports. They were always updated. You can see in the three bubbles there, we could report back spend amounts on specific food groups like fruits and vegetables, what the spend amounts were over time, and of what type, canned, fresh, or frozen, as well as specific items purchased, amounts spent on each, and counts spent on each. You can imagine how helpful these were to the dieticians who were trying to better understand what the participant was purchasing, as well as which suggestions had been accepted and adopted by the participants.

Our primary endpoint was DASH score. DASH ranges from zero to 90. The higher the score, the higher the adherence to the DASH diet. Two tests were done for DASH score change. First, we tested what is the efficacy of data-guided, in-store teaching. This was strategies one and two combined versus control. If we were statistically significant then we could test the second question, which was, what is the efficacy of online shopping and these various nutrition applications, were strategy two versus strategy one.

Our baseline characteristics are here. You can see the average age was in the 50s. 70% were female. This was almost an entirely primary prevention population and the risk factors were either controlled or somewhat not controlled. But generally, it had pretty good control over the risk factors.

This is an image of the education visit attendance in strategies one and two prior to the pandemic, and what is remarkable here is the near perfect visit attendance even out to visit six in this free living community based cohort. This is remarkable compared to past studies. This is the visit attendance during the disruption of the COVID pandemic. You can see here visit attendance was not as good, but still remarkably good compared to past community-based studies that were conducted even prior to the pandemic.

Here are some of the results. You can see here, in all three groups, there was an increase in DASH score. And you can determine that by the fact that the confidence intervals did not cross zero. So, very important. In terms of our first test, yes, strategies one and two together did increase DASH score compared to control, and that was significant. Then we were able to test whether the online enhancements further increased DASH score and yes they did, and that was statistically significant as well. At six months, you can, again, see that DASH score was significantly increased in all three groups. Now, this was at least three months after the last educational session in strategies one and two, and six months after the last educational session in the control group. Now, between group differences were no longer significant. As you can see here, both for the primary and secondary comparisons.

In summary, adherence to the DASH diet increased in all three groups, not only at three months, but at six months, and SuperWIN has demonstrated the efficacy of, not only dietary interventions harnessing the store's physical environments, using our dietitians and purchasing data, but new technologies and services, and the data from this study suggests that the participant experience was excellent. And finally, SuperWIN was only made possible by this unique collaboration and we hope more collaborations like this will exist in the future. Thank you.