

Dietary Advice on Prescription (DAP). A pedagogical Model for Better Dietary Habits Tested in a Two-Year Randomized Clinical Trial.

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Abstract:

There is a gap between what we know and what we do, such as knowing what we should eat and what we actually eat, a so-called "attitude/behavior gap". It is not necessary to go from a change in attitude to a change in behavior. It is possible to do the opposite; in other words, it is possible to go from a change in behavior to a change in attitude. The objective of this paper is to describe and explain the concept of Dietary Advice on Prescription (DAP) and present the reasons and evidences for the DAP messages. Dietary Advice on Prescription (DAP) starts with discussing behaviors related to dietary habits and then goes from behaviors towards attitudes. DAP is a theory-based pedagogical model that deals with behaviors related to why, how and when we eat, rather than what we eat. The DAP model is a method that quickly leads the client onto a track that yields autonomy, respects the client's integrity, gives confirmation, emphasizes the delight and pleasure of eating, stimulates discussions and gives the client the initiative in these discussions. In a clinical situation, the counsellor lays out the DAP postcards on a table and the client picks one card (or several) that feels relevant and interesting for the client to discuss. Together they make an agenda for the discussion such as, for instance, in what order to discuss the DAP postcards. The counsellor asks in an open manner with a motivational interview (MI) spirit why the client has chosen the particular card(s). The client explains, elaborates, turns and twist about the choices he/she has made. The results of the first published qualitative study of this two-year randomized controlled trial demonstrate that the participants found the concept valuable.

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Why a New Pedagogical Model for Better Dietary Habits?

We know from previous research that only informing means little in achieving a behavioral change, such as changing dietary habits. There is a gap between what we know and what we do, for instance, in knowing what to eat and what we actually eat, a so called attitude/behavior gap¹. To begin with changing the behavior without making the detour over affecting the attitude has been shown successful in, for instance, serving healthful food or arranging a cooking course instead of talking about healthful food. An individual that has changed behavior often speaks warmly of the new behavior and seeks motives for it by, for instance, reading books, going to lectures, and other pursuits. We found this approach successful in a study where the volunteers changed their diet by participating in a cooking course and eating the demonstrated diet². They first learned to cook this particular diet and afterwards they became interested to learn more about it. This is a way to accept an uncommon diet and hopefully find it appetizing.

The objective of this article is to describe and explain the concept of Dietary Advice on Prescription (DAP) and present the reasons and evidences for the ten DAP messages. DAP is a theory-based pedagogical model which emphasizes behaviors related to why, how and when we eat rather than what we eat. The DAP messages in our study are in the shape of postcards and are used as a menu of significant topics of eating habits for a discussion³. In a clinical situation, the counsellor lays out the DAP postcards on a table and the client picks one card (or several) that feels relevant and interesting for them to discuss. Together they make an agenda for the discussion such as, for instance, in what order you discuss the DAP postcards. The counsellor asks in an open manner with a motivational interview (MI) spirit why the client has chosen the particular

card(s)⁴. The client explains and elaborates about the choices he/she has made and the thoughts that the cards have brought about in relation to the messages on the cards. One idea with the cards is that when the client has taken the initiative in the discussion, the client will not feel that he/she has been told to do something. This means that the subject will be issues that the client is eager to find an answer to. The main purpose of the cards is to stimulate a discussion initiated by the client. When there is a question that the counsellor does not know the answer to, the counsellor refers to quality assured homepages such as www.wcrf.org (World Cancer Research Fund). There should be a joint project to find an answer.

Even though the method is important, the relationship between the counsellor and the client is more important⁵⁻⁷. This is well-known and was first described by Rosenzweig, who called this phenomenon "The Dodo bird verdict"⁷. Thus, if there is a bad relationship between the counsellor and the client, no method whatsoever will work. On the other hand, with a good relationship between the counsellor and the client, any method will work. Even though the relationship between counsellor and client is more important than the method, the method is not unimportant. Counsellors, such as nurses, have expressed that a tool for making dietary counselling more effective and easygoing is longed for and would be greatly appreciated, since dietary discussions is often found arduous and complicated. An advantage with the DAP model is that it quickly leads the client onto a track that yields autonomy, respects the client's integrity, gives confirmation, emphasizes the delight and pleasure of eating, stimulates discussions and gives the client the initiative in these discussions. The counsellor highlights the positive things the client says and supports and

strengthens the good choices and ideas that emerge from the conversation.

Reasons and Evidences for the Ten DAP Messages

The first DAP message “**Place your utensils on your plate following every mouthful of food taken**” (Table 1) is about enjoying the food and reducing eating speed in order to feel satiation before overeating⁸⁻¹⁰. Obese people eat more rapidly compared

Table 1. The Ten Messages/ The Dietary Advice on Prescription (DAP).

No.	Dietary Advice on Prescription
1	Place your utensils on your plate following every mouthful of food taken
2	Feel the taste of the food you are eating
3	Start the meal by eating raw vegetables
4	Regularly eat breakfast, lunch, and dinner
5	Eat only at the dinner table
6	Eat only one portion during a meal
7	Eat only when you are hungry
8	Use a shopping list when you purchase food
9	Use the food circle when planning your food intake
10	Use the plate model when planning your meal

to normal weight people; obese people also take more chew bites per time unit^{9, 11}. Eating too fast may lead to metabolic disturbances such as insulin resistance and postprandial reflux¹²⁻¹⁵. Since it takes at least 15 minutes to feel satiation, a low speed of eating may result in stopping eating when feeling satiation, which may lead to a reduced calorie intake, and thus in the long run a weight loss⁸. Several hormones are released from the gastrointestinal tract when you eat, such as cholecystokinin and leptin, which affect neurotransmitters in the brain, such as dopamine, which in turn affect appetite, hunger and satiation¹²⁻¹⁵. Chewing, per se, increases the circulation of blood in the brain, which may explain improvements of cognitive functions among elderly people who chew well¹⁶⁻¹⁸.

The second DAP message “**Feel the taste of the food you are eating**” (Table 1) is about mindful eating; in other words, having the client focus attention on what they are doing right now, in this case eating and enjoying the taste, the smell and the texture of the food¹⁹⁻²³. We sometimes eat unconsciously and thoughtlessly and are unaware of the choices we actually make about food. We make on average 220 decisions about food each day²². Mindful eating is about making us aware of what we eat, how we eat, when we eat and everything that affects eating. Eating consciously help us to avoid mindless eating, which is eating without taking notice of what is being eaten and how much is eaten, such as through snacking and overeating; it also aids being present, which means enjoying and tasting the chosen food being eaten. The DAP message is also about a mental attitude, an attitude about gratitude to all people that have made it possible for them to eat the food they have in front of them.

The third DAP message “**Start the meal by eating raw vegetables**” (Table 1) is about obtaining valuable nutrients and phytochemicals, as well as about the first DAP message; that is, there is a need to reduce the speed of eating so that they can feel satiation before overeating which, in the long run, may reduce the risk of obesity. Eating raw vegetables can and should take a long time to eat. Vegetables and roots contain plenty of water and fiber and little energy in relation to weight and volume, and yield good satiation. It is therefore possible to eat large volumes without obtaining too many calories.

The fourth DAP message “**Regularly eat breakfast, lunch, and dinner**” (Table 1) is about the understanding that it is during meals that we obtain more nutrients and phytochemicals in relation to snacking. Snacks are usually more energy dense and poor in nutrient quality. This means that the prerequisite to be weight stable or to reduce weight is better if we eat meals compared to snacking frequently. We then get

a structure in our dietary habits, and the risk of getting hungry and snacking is smaller. With regular meals, the risk of blood sugar fluctuations is reduced. Skipping meals is not a good way of losing weight²⁴. For instance, the risk of coronary heart disease increases when you skip meals²⁵. When the body is in a fasting state, the levels of blood cholesterol, insulin and blood pressure are elevated²⁵.

The fifth DAP message "**Eat only at the dinner table**" (Table 1) is about that it is more likely and easy to follow the foregoing DAP messages, i.e. that you eat in a mindful way, that you place your utensils on your plate following every mouthful of food taken, that you feel the taste of the food you are eating, that you start the meal by eating raw vegetables compared to be sitting in front of the television, in front of the computer, in the car etc.

The sixth DAP message "**Eat only one portion during a meal**" (Table 1) is yet again about not overeating, which increases the chance for longevity and good health^{26, 27}. Put a moderate amount of food on a plate and then say to yourself that this is a fair portion size. This is important, since the calorie intake affects the risk of becoming overweight²⁸⁻³³. The increase in portion size seen over the years may be the result of a distortion of what one portion is, and a wish to get "value for money" as well as commercial interest in selling more.

The seventh DAP message "**Eat only when you are hungry**" (Table 1) is about understanding that we will gain weight when we eat too much, irrespective of the reasons why we eat. We can eat to calm down our emotions, to console ourselves, and many other reasons. This is called emotional eating, and is related to weight gain and obesity, and is often seen among obese people³⁴⁻³⁹. The problem with emotional eating is that when we try to resolve problems related to emotions such as boredom, sorrow, disappointment, need of

comfort and so on, with food, we do not solve the problem; instead, we receive another problem. We are then in a vicious cycle. The main problem and the most delicate problem with emotional eating is probably that there is a sense of having a good time while eating and drinking on certain occasions, such as in front of the television. These moments are associated with good feelings, joy, relaxation, fellowship, well-being, and more. Of course, commercial interests use this fact to advertise their products, especially those we do not need nutritionally such as soft drinks, crisps, sweets, and other snack foods⁴⁰. Dealing with this is a pedagogical challenge. A good "MI-spirit" is required, as well as an understanding of how many emotions there are in eating and drinking these products⁴.

The eighth DAP message "**Use a shopping list when you purchase food**" (Table 1) is about purchasing what you intended to purchase when you left home, and avoiding impulse buying. For instance, typical products to impulse buy is sweets; the consumption of sweets in Sweden has increased over 250 % since the 1960s⁴¹. With a shopping list, the chances increase for purchasing healthy foods.

The ninth DAP message "**Use the food circle when planning your food intake**" (Table 1) is about a straightforward and easily understood pedagogical model for being able to eat nutritious food⁴². In the food circle, the foods are grouped in a way that foods with similar nutrient content are grouped together. If you eat something from each group in the food circle, you will get a good variety of nutrients.

The tenth DAP message "**Use the plate model when planning your meal**" (Table 1) is about how you compose a healthy meal as with, for instance, a lunch or a dinner⁴³. It illustrates the proportions of the ingredients of a meal. The plate model has three parts: 1) The first part is potatoes, rice, bulgur and bread. Choose at firsthand wholegrain products. If you need

more calories this part can be made larger. 2) The second part is vegetables and roots. This part has the same size as the first part. If you want to lose weight this part can be made larger, up to half of the plate. 3) The smallest part is the third sector, which is for meat, fish, eggs, and legumes such as, for instance, beans and lentils. The plate model illustrates the proportions between the three parts. Irrespective of if you eat a lot or a little, the proportions should be the same. The plate model does not say anything about how much you should eat - it is up to hunger and energy needs.

Discussion

Right now we are performing a two-year randomized controlled trial on obese people in order to investigate the effects of the pedagogical model Dietary Advice on Prescription (DAP). So far, we have published a qualitative study⁴⁴. This study demonstrates that the volunteers have changed their attitude towards healthy dietary habits. When we have analyzed the randomized trial, we will have data on quantitative variables such as body weight, waist circumference, blood lipids, blood pressure, and other measures. Irrespective of the results of the quantitative part, we know that the pedagogical model was well received by the volunteers in the study⁴⁴. So far, no method has been shown to work for everyone and, to be realistic, achieving success would mean seeing that this method works for people where other methods do not work.

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