

mize stress on the shoulder and she remarkably reported no sense of heat from the 150 degree F heat from the surgical tool.

Conclusions

1. The model provides a way to prepare patients to have surgery using hypnotic procedures as a form of mental training that is individualized for each patient.
2. The use of hypnosis during surgery takes on dynamic characteristics that vary over the duration of the surgery.
3. Three phenomenological dimensions of hypnotic depth: 1) Depth of Trance, 2) Acceptance of Pain Control Suggestions and 3) Intra- and Inter-personal Relationship were useful in individualizing the interventions to the patients' needs and reactions to the surgery.
4. During a surgical procedure, the depth of trance dimension becomes less important and the intra- and inter-personal relationship increases in importance over the duration of the procedure and during portions of the surgery that are physically demanding.
5. High hypnotizability, as measured by the Stanford Hypnotic Susceptibility Scale, Form C was not necessary to complete a procedure using hypnotic techniques. Patients in the medium and even low range of Stanford scores also did well.
6. Being able to establish trust with the surgical team, having positive attitudes towards reframing pain sensations, and being highly motivated were also related to being able to complete the procedure.
7. Being actively involved in the surgery allowed the patients to deal with the physical demands placed on their body and make adjustment to minimize physical trauma that would not be known if they were in general anesthesia.

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■ A population wide as well as a group-based suggestion of health promoting behaviors is discussed. Our suggestion technique centers around the collection of health-relevant individual experiences, the modification of health-hindering experiences and establishing health-promoting attributions. The collection as well as modification of health-relevant experiences is guided by attribution theory. Population wide and individual health-hindering attributions are changed into health-promoting attributions by suggesting new experiences as to consensus, distinctiveness, and consistency of one's health related behaviors. The population wide suggestion is evaluated with 100 chronically ill patients taking part who initially were not interested in any support to cope with their disease. The group-based suggestion is evaluated with 107 patients with diabetes mellitus participating in a health education measure.

It is argued to combine population as well as group-based suggestive measures to improve health promoting interventions.

Introduction

Public Health offers a number of promising approaches to deal with the increase of chronic diseases as well as with allergic, psychosomatic, and environmental diseases. It also has valuable tools to offer in dealing with well-known and with new infectious diseases. The key issue of Public Health is to promote population based prevention of the diseases themselves and general health promotion. Public Health has little connections to psychology, as psychology is expected to work with individuals and groups, but not with populations (Schwartz, Badura, Leidl, Raspe & Siegrist 1998; Weitkunat, Haisch & Kessler 1997).

Suggestion of health related behavior

One of the main goals of Public Health is the promotion of health behavior and of behavior change to improve the general health of the population. In order to achieve

this goal population-wide health campaigns are introduced. These campaigns stress the importance of health behavior such as regular exercising, using condoms, quitting to smoke and eating a balanced diet to stay healthy. At the same time they aim at changing behavior on a population-wide scale. The basic idea of information campaigns is to inform the public about health risks in order to create an understanding of which behaviors are healthy and which are not. The underlying idea is that behavior change will occur once the potential risk of unhealthy behavior is realized. Unfortunately, this assumption could not be upheld in most empirical studies (Stroebe & Stroebe 1995). Public Health campaigns, thus, eventually lead to improvement of health-related knowledge but only rarely bring about a change in behavior.

According to Gheorghiu (1992) the suggestibility of persons at risk for unhealthy behavior depends largely on the uncertainty of the benefit gained through a decision to change behavior. Unhealthy behavior for example often promises immediate personal benefits, the fruits of healthy behavior on the contrary often can only be reaped in the long run.

From a psychological point of view persons at risk for unhealthy behavior, usually excuse their unhealthy behavior by applying attributions (Crocker & Major 1989). For example persons who eat unhealthy excuse themselves with the attribution "I have a genetic disposition". Persons that smoke might use the attribution "I cannot quit because I am addicted". The common feature of these attributions is that the causes of the unhealthy behavior are beyond the person's control. Thus the attributions serve as an excuse that the person continues with his or her unhealthy behavior despite the knowledge of the health-related consequences of the behavior. Moreover, these kind of attributions protect the person's (attributor's) self-esteem thus making any change in behavior highly unlikely. Finally, the same kind of attributions are frequently found among various health-related behaviors (Gheorghiu & Wallbott 1994).

Accepting that unhealthy behavior can be changed, on the contrary, would be the prerequisite for developing new health-related behaviors. In order to perceive unhealthy behaviors as changeable new personal experiences must be imputed to persons at risk (or "Unterschiebung" as it is called by Gheorghiu 1992).

Our population-oriented approach of suggesting healthy behavior relies on the success of health promotion reported by Davison et others for various self-help interventions (Davison, Pennebaker & Dickerson 2000; see Moos, Schaefer, Andrassy & Moos 2001).

The self-help program we developed allows a person to test his or her conclusions about his or her health risks (Haisch 1996). The test itself is based on the method of covariation as suggested by Kelley (1973). This method allows a person to understand the factors which lead to valid conclusions about his or her behavior. The conclusions in turn sustain the healthy or unhealthy behavior. Therefore the intervention helps a person to understand the possible causes of health related behavior and helps the individual to draw conclusions relating to the underlying facts of his or her behavior.

Because only if a person can change his or her conclusions regarding health behavior can a change of behavior be expected and sustained. Therefore we suggest new facts (experiences) to a person as a basis for drawing rational conclusions and for rationally guided behavior (Gheorghiu 1992).

The next step involves differentiating attributions that are helpful in bringing about behavior change from attributions that are impeding behavior change. Most often, impeding attributions are attributions to robust or stable causes within the disposition of the person. This involves explanations like a genetic disposition that cannot be changed. Impeding attributions can also attribute health behavior to causes beyond the control of a person, that are outside the disposition of the person. For example could a person attribute her health behavior to his or her doctor's professional skill. To test the attributions, short vignettes of health-related behavior are presented, suggesting experiences of every day life. If a person in such a vignette, for example, admits that a behavioral change is possible under certain circumstances, her attribution to robust or stable causes must be incorrect for that behavior. That means since the behavior can be changed under certain circumstances it cannot be beyond the control of the person.

Evaluation of the Public Health-oriented suggestive measure

One way to reach out to the public is by distributing health improving materials in the offices of general practitioners. Of course, this implies a selected sample, as people visiting their doctor already have one or more health problems. We therefore asked subjects to participate in our study who did not seek help from their doctor for the health problem we investigated.

Up to now we evaluated empirical evidence from the offices of seven general practitioners involving 100 patients. Of the patients 56 were male and 44 were female. The average age of the patients was 68 years. All patients were diagnosed as having type 2 diabetes (non-insulin-dependent diabetes mellitus or NIDDM), who actually refused to treat their chronic disease in a more differentiated way. All patients received our self-help booklet before further treatment was started. All patients then were offered to participate in a structured and systematic diabetes education program. At the beginning of our intervention as well as 3 and 6 months after the completion of the intervention patient data were collected either by letter or in the doctor's office. The data gathered included glycosylated hemoglobin (HbA1c) as an index for the blood sugar level during the last three months and the Body Mass Index (BMI), as well as data from a diabetes questionnaire.

More than 90 percent of the 100 patients indicated to have completely read and fully understood the self-help program. On a six-point rating scale patients indicated that the program was useful to them and that they already had applied it in their daily lives.

Though patients indicated that their first diagnosis of NIDDM was at an average more than 12 years ago, none of them was actually interested in a diabetes education program and nearly 85 percent of them never had participated in any diabetes education

on program before. At the beginning of the study the average of the glycosylated hemoglobin (HbA1c) of the study population was 9,2% which is well beyond the desired value of 6,5%. The average value of the BMI was 29,3 which correlates with the high number of obese patients diagnosed with NIDDM.

After distribution of the self-help booklet and the invitation to participate in the structured diabetes education program, general practitioners received 18 applications for the 4 hours, standardized diabetes education program. The number of participants is slightly above the 10 % figure doctors received as response to regular invitations to participate. 80 patients were not interested in the diabetes education program, 2 patients changed their general practitioner and did no longer participate in the study.

Three months after the distribution of the self-help booklet some surprising results emerged. Patients using the self-help booklet could cope better with their diabetes than patients participating in a structured diabetes education program. Data from a 6 month follow-up are not reported here because of high drop-out rates. Details are shown in table 1.

First, the table indeed shows an effect of patient education: A decrease in blood sugar levels as well as in overweight can be noted. Interestingly similar but much stronger decreases can be found in the patients not participating in the education program. This is supported by significant interactions for HbA1c- and BMI-measures in the ANOVA. Moreover, participants of the systematic patient education program perceived their control of blood sugar levels increasingly as being dependent on their doctors while non-participants lost this perception of dependency. The perceptions of self-

Table 1: Long-term quality of blood sugar levels HbA1c and body mass index BMI in participants and non-participants of a diabetes education program at the beginning (t1) and three months after (t2) the education program

	N	HbA1c		BMI	
		t1	t2	t1	t2
Education only	18	8,9	8,8	27,3	27,0
Suggestion only	80	9,5	7,6	31,3	24,4

Table 2: Attributions and blood sugar related estimates. 10-point scales (Fear of hypoglyc = fear of hypoglycemia; Problems quality of life = person indicates problems with her quality of life)

	Attribution Doctor		Attribution Self		Fear of hypoglyc		Problems quality of life	
	t1	t2	t1	t2	t1	t2	t1	t2
Education only	2,6	6,2	7,5	4,1	5,4	5,9	5,9	5,3
Suggestion only	3,7	2,2	6,9	8,7	3,8	3,6	3,5	1,8

control and of quality of life paralleled these results, as non-participants significantly perceived a better self-control of blood sugar levels as well as higher quality of life in the 3-months follow-up measures.

The results suggest that coping with NIDDM diabetes mellitus was more successful in patients not participating in a diabetes education program but being supported with a suggestive self-help program. Neither former participation in diabetes education programs nor completely reading the self-help program, nor any type of previous diabetes treatment (diet, drugs) had any influence on this result, as is demonstrated by ANCOVA.

Suggestion within groups

To establish our suggestive measures within groups of persons at risk, we suppose that participants will learn from each other most efficiently. If a desired attribution requires the suggestion of new experiences, other participants were asked to report their experiences in the past together with incentives to change behavior and personal strengths. If differing experiences for a desired reattribution do not exist within a group, the participant is asked to phantasize an "ideal patient", who underwent the desired experience. If any participant, on the basis of suggested experiences draws new conclusions and, for example, attributes his behavior to personally controllable causes, he is asked to develop a plan of self-control for one week. Such a plan of self-control should be based on the persons newly developed attributions.

Evaluation of a group suggestive measure

To have results related to our Public Health oriented suggestive measure, I will report on comparable health risks within a group education program. 107 type 1 diabetes patients (IDDM) of whom 60 were female and 47 male, participated in this intervention study. The age of patients ranged between 17 and 64 years with an average of 36 years. For 52 % of these patients this was their first diabetes education program, 31 % had already participated in such a program previously, 17 % previously had joined two or more such education programs. Patients at average were diagnosed with type 1 diabetes mellitus 13 years ago with a range from 4 months to 45 years. 75 % of the patients had no symptoms of comorbid conditions. 23 % of the patients were diagnosed with various comorbid conditions. All patients participated in an inpatient education program for 12 days with topics closely related to the NIDDM intervention. All patients were assigned at random to education groups, 68 patients in 8 groups participated in an intensified diabetes education program plus additional suggestion of helpful attributions, 39 patients in 5 groups participated in an intensified diabetes education program without additional suggestions. Differences in numbers of patients in treatment groups occur because of differences in numbers of patients assigned to the clinic. All experimental groups were comparable regarding years of diagnosed disease, number of previous diabetes education programs and comorbid conditions. And all experimental groups were conducted by the same doctor, who was pretrained in our suggestion technique.

The only difference between intervention groups was in handling the topics of the intensified education program. While the suggestion groups also discussed these topics in connection with their attributions as well as with changeability of behavior, in the intensified education program patients learned more biomedical details about each topic. Time spent at each topic, thus, was the same for all intervention groups.

At the beginning of the diabetes education program, at the end, and 3 months after the completion of the program all patients were asked to complete a diabetes questionnaire. At the beginning and 3 months after the program's completion glycosylated hemoglobin of all patients was measured. At the end of the education program 106 patients, and 3 months later 91 patients returned the questionnaire, the glycosylated hemoglobin of 85 patients could be measured at this follow-up.

Generally, HbA1c values decrease after the diabetes education program, but corresponding norm values were not reached. Moreover, there is a significant increase in the sense of control over one's own blood sugar level in all groups, and a significant decrease of fear of hypoglycemia which especially occurred for suggestion groups. Additionally, quality of life increases in all diabetes education groups.

Methodologically speaking, the success of diabetes education programs conducted by a psychosocially oriented doctor, as in our study, is extraordinary so that additional psychosocial suggestions of helpful patient attributions will not improve the program's effectivity (ceiling effect). Of course, this does not hold true for education programs, where psychosocial factors are not worked on systematically; here, our suggestion of helpful attributions should improve the effectivity of the program. And our previously published data on the suggestion of helpful attributions in NIDDM diabetes education groups exactly show this to be true (Haisch & Braun 1999).

Besides the effectivity of the applied education program itself, improvements of the ambulatory care of diabetes patients are necessary, as only 10% of these chronically ill patients accept their doctors' invitation to join a diabetes education program which could be an important basis for the successful treatment of their disease. Here, our public health oriented suggestion should improve participation rates. Moreover, public health oriented, self-help based suggestions could help preventing relapses after diabe-

Table 3: Long-term quality of blood sugar levels HbA1c, fear of hypoglycemia and quality of life QOL in diabetes education groups and additional suggestion groups

	t1	t2
HbA1c	Education	7,6
	Suggestion	7,5
Fear	Education	7,6
	Suggestion	7,3
QOL	Education	6,7
	Suggestion	5,9
	Education	5,7
	Suggestion	4,7
	Education	5,0
	Suggestion	5,8
		6,2

tes education programs (Haisch 2000). That is, at least in the field of already successful patient education programs, the effectivity of these programs could be improved by additional public health measures before and after the intervention itself. In this way, the suggestion of health promoting attributions could be essential for public health.

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