

**Fachbereich Erziehungswissenschaft und Psychologie
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**GENERAL PRACTICE CARE OF OVERWEIGHT AND OBESE PATIENTS:
AN ANALYSIS FROM A HEALTH PSYCHOLOGY PERSPECTIVE**

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ABBREVIATIONS

5A	Assess, Advise, Agree, Assist, Arrange
BDA	Bund deutscher Hausärzte (German GPs Association)
BECCI	Behavior Change Counseling Index
BMBF	Bundesministerium für Bildung und Forschung (Federal Ministry of Education and Research)
BMI	Body Mass Index
DAG	Deutsche Adipositas-Gesellschaft, Deutsche Diabetes-Gesellschaft, Deutsche Gesellschaft für Ernährung, Deutsche Gesellschaft für Ernährungsmedizin (German Obesity Association, German Diabetes Association, German Nutrition Society, German Society for Clinical Nutrition)
GP	General Practitioner
HAPA	Health Action Process Approach
ICD	International Classification of Disease
KKG	Fragebogen zur Erhebung von Kontrollüberzeugungen zu Krankheit und Gesundheit (Questionnaire assessing health-related Locus of Control)
KV	Kassenärztliche Vereinigung (Association of Statutory Health Insurance Physicians)
MA	Medical Assistant
MCS	Mental Component Score (SF12)
MI	Motivational Interviewing
OPTION	Observing Patient Involvement Scale
QoL	Quality of Life
PCS	Physical Component Score (SF12)
PSS	Perceived Stress Scale
RIAS	Roter Interaction Analysis System
SD	Standard Deviation
SDM	Shared Decision Making
SF12	Short Form 12 Health Survey
RKI	Robert Koch Institute
WHO	World Health Organization
ZI	Zentralinstitut für die kassenärztliche Versorgung (Central Research Institute of Ambulatory Health Care)

1 GENERAL INTRODUCTION

1.1 OVERWEIGHT AND OBESITY

Overweight and obesity are two central issues in health care worldwide that generate enormous costs for health care systems. Although numerous different intervention strategies exist, the success rates following treatment are low and the prevalence of obesity remains alarming. In particular, long-term weight stabilization, requiring complex lifestyle changes, is rarely obtained. In Germany, the diagnosis and therapy of overweight and obesity are predominantly the responsibility of physicians, in particular of General Practitioners (GPs) as first contact persons for patients. Often, however, GPs feel overwhelmed and inadequately trained to treat this complex problem successfully. Health psychology offers several models that explain health behavior changes. Yet implications of these concepts are seldom integrated into the treatment of overweight and obese patients. Very few specialized obesity centers are interdisciplinary in their approach. In primary care settings above all, the cooperation between physicians and psychologists leaves room for improvement.

1.1.1 DEFINITION AND EPIDEMIOLOGY

According to the World Health Organization's (WHO) classification, overweight is defined by a body mass index (BMI) ≥ 25 kg/m². WHO classifies obesity (BMI ≥ 30 kg/m²) as a disease and distinguishes between three degrees of severity (WHO, 1998; Wirth, 2002):

- Class I Obesity: BMI ≥ 30 kg/m²
- Class II Obesity: BMI ≥ 35 kg/m²
- Class III Obesity: BMI ≥ 40 kg/m²

Elsewhere, obesity is classified as a “chronic disease with relapse potential” (DAG, 2007) and is considered a separate disease by the International Classification of Disease system (ICD-10). WHO defines it as a “chronic disease with reduced quality of life and high morbidity and mortality risk that requires long-term care”. The term “obesity epidemic” reflects the large increase in the prevalence of obesity in Western industrial nations. In this context, WHO has made combating obesity worldwide one of its foremost goals. In

an additional declaration, WHO announced a more intensive way of tackling this problem on a European level (WHO, 2006). Especially alarming is the fact that the prevalence in industrial nations is so high that not all affected can be adequately treated (WHO, 2000). About 5% of all health care expenses in industrial countries are spent on treating obesity and its consequences (Thompson & Wolf, 2001).

The degree of overweight or obesity is usually evaluated using the BMI system, even though studies show that other parameters such as the amount of visceral fat (WHO, 2000; Wirth, 2002; Despres, Lemieux & Prud'homme, 2001), "waist-to-hip-ratio", and the waist circumference are better predictors for obesity-associated diseases (Wirth, 2002). According to the Robert-Koch-Institute, in Germany two thirds of men and half of women over 18 years are overweight (BMI ≥ 25 kg/m²), while 17% of males and 20% of females are obese (BMI ≥ 30 kg/m²), (Mensink, Lampert & Bergmann, 2005; Mensink & Bergmann, 1999). A large increase in obesity prevalence is also seen in the transition from young to middle adulthood (25-34 years of age) (Mensink, Lampert & Bergmann, 2005). When former West and East German states are compared, an alarming trend emerges for the latter. For both sexes, the prevalence of obesity in former East Germany (21% male and 24% female) is higher than in former West Germany (18% male and 21% female, Mensink & Bergmann, 1999). Obesity in Germany is mainly a problem of the poorer strata of the population and both sexes in lower social strata are by far most affected (Knopf, Ellert & Melchert, 1999).

For children an alarming picture emerges as well. Between ages 3 and 17, 15% of boys and girls are overweight, and 6.3% are obese (Kurth & Schaffrath-Rosario, 2007). Low social status, excess weight of parents, and recent history of immigration are closely associated with overweight and obesity in children. Excess weight during childhood is also associated with excess weight as an adult (Whitaker, Wright, Pepe, Seidel & Dietz, 1997). In addition, obesity during childhood is seen as an independent risk factor for the development of cardiovascular disease as an adult (Wabitsch, 2000). Many other countries face a similar situation: In the USA the prevalence of obesity is over 30% for adults over 30 years and as such is the highest percentage worldwide (Hedley et al., 2004). If this trend continue, by 2048, all American adults would become overweight or obese (Wang, Beydoun, Liang, Caballero & Kumanyika, 2008).

1.1.2 CAUSES OF OVERWEIGHT AND OBESITY

The etiology of overweight and obesity is considered complex and appears to be partly a consequence of modern lifestyle and partly due to genetic causes. The quality of daily nutrition in Western industrial nations can be seen as one main factor causing excess body weight. By comparing the actual daily consumption of food with the amounts and types of foods recommended by the German Nutrition Society, it was found that fats and proteins were consumed in excess, whereas carbohydrates were not consumed enough (RKI, 2003). In comparison to people with normal weight, it was seen that overweight and obese people did not eat significantly more but that they consumed larger proportions of fat (Pudel & Westenhöfer, 1998).

Apart from nutrition, another important contributing factor to excess weight is lack of physical exercise (Hauner & Berg, 2000). Hill and Peters (1998) summarize that Western industrial society constantly stimulates people to eat (e.g., by increasing package sizes and by assuring constant food availability), while the use of cars, computers and television deters physical activity.

The dominance of low physical activity lifestyles with low energy consumption combined with excess nutritional intake leads to a positive energy balance and thus explains in large part the increase in the prevalence of overweight and obesity.

On top of this, a polygenetic background for the development of obesity is suspected (Comuzzie & Allison, 1998). Research shows a close association between BMIs of obese children and their biological parents (RKI, 2003).

Another etiological factor is the Leptin hormone that is coded by the “obesity gene” and is secreted in relation to body fat mass. The appetite-stimulating hormone Ghrelin is also related to the development of obesity (Wren et al., 2001). People taking drugs such as insulin or certain types of psychotic drugs are also prone to elevated body weight.

According to the “set-point hypothesis”, body weight is regulated at a certain level, which can be influenced in the middle- and long-term through nutrition and activity. Short-term changes in eating habits are balanced through metabolic regulation and thus do not modify the “set point”. Only long-term changes can influence the weight setting (RKI, 2003; Pudel & Westenhöfer, 1998).

Psychological and social factors also play a significant role in the origin and maintenance of excess weight (Pudel & Westenhöfer, 1998). The influence of cognitions and emotions on weight will be reported in detail in section 1.3.2.

All of these factors work together and none can explain the enormous increase in the prevalence of overweight and obesity on its own.

1.1.3 CONSEQUENCES OF OVERWEIGHT AND OBESITY

Being overweight or obese for a long period of time can cause numerous diseases including metabolic (diabetes mellitus type 2), cardiovascular (coronary artery disease), musculoskeletal (primarily orthopedic) and malignant diseases (endometrial, mammary, and colon carcinomas). Psycho-social consequences of overweight and obesity are a diminished perceived self-worth, social withdrawal, increased depression, fear, and social isolation (Wirth, 2002; DAG, 2007; National Task Force, 2000). Studies also show a decreased quality of life in people who are overweight or obese (see study 1); this is especially evident in women (Fontaine & Barofsky, 2001).

Excess weight counts as the most important promoter of metabolic syndrome, which is associated with an increased risk of arteriosclerosis (Lakka et al., 2002; Sattar et al., 2003). Furthermore, a correlation has been found between increased BMI and decreased life expectancy. In later years of life, this mortality risk seems to decrease (Calle, 1999).

On the other hand, a review by Romero-Corall et al. (2006) shows that in patients with heart and circulatory diseases, a BMI between 25 kg/m² and 29.9 kg/m² functioned as a protective factor. This “obesity paradox” is not found in healthy patients with increased BMI. Only patients from class II obesity upwards show an increased risk for cardiovascular disease. While pointing to a possible protective function of excess weight for cardiovascular disease, these results also indicate the incapacity of the BMI parameter to differentiate conditions correctly.

1.1.4 TREATMENT OF OVERWEIGHT AND OBESITY

Treatment based on guidelines

There is a consensus that obesity (BMI \geq 30 kg/m²) has to be treated and that a BMI between 25 kg/m² and 29.9 kg/m² also needs to be treated when other co-morbidities are present (National Task Force, 2000; BDA, 2002; DAG, 2007). Among these possible co-

morbidities, obesity-associated health problems (hypertension, diabetes mellitus 2) play a significant role, as do abdominal fat distribution, high mental stress, and diseases that are exacerbated by overweight or obesity. Several international and national guidelines for diagnosis and therapy of overweight and obesity exist.

The guideline of the U.S. Preventive Service Task Force (2003) is recognized internationally. In German-speaking countries, two structured aids are available that give physicians concrete treatment advice. The *Adipositas Manual* (BDA, 2002) from the German association of GPs describes challenges and tasks involved in outpatient overweight and obesity treatment. Here, the GP assumes a central coordinating function within a team of different health experts. One of the pronounced strengths of the manual is its integration of concepts from different professions. A drawback is its lack of evidence for the approach.

Second, *Deutsche Adipositas-Gesellschaft, Deutsche Diabetes-Gesellschaft, Deutsche Gesellschaft für Ernährung and Deutsche Gesellschaft für Ernährungsmedizin* (German Obesity Association, German Diabetes Association, German Nutrition Society, German Society for Clinical Nutrition) have co-published an evidence-based guideline for the prevention and therapy of obesity (DAG, 2007). This guideline does not focus on outpatient care of overweight and obese patients, which limits its utility for GPs. However, GPs play an important role in the treatment of overweight and obesity in this guideline as well. The practicality of some recommendations is questionable, e.g. the recommendation to treat people in special obesity centres that in fact are often not available.

Guidelines agree on major points (e.g., the need to treat is dependent on a certain BMI level); however, their emphases differ. The guideline of the German Obesity Association (DAG) expounds on internistic diagnosis, whereas the BDA guideline emphasizes the importance of long-term therapy and of patients' and therapists' motivation. In the BDA manual, patient motivation is discussed in a separate chapter explaining how motivation to lose weight can be provided in GP consultations, what difficulties can arise, and how physicians and patients can overcome these. Additionally, the significance of concrete and attainable goals for successfully reducing weight is highlighted.

Goals of overweight and obesity therapy are long-term weight management, realistic weight reductions (5% to 10%), reductions in obesity-associated risk factors and diseases, better health behavior through non-excessive nutrition and regular physical activity, reduction in sick leave, increased stress management, and increased quality of life.

In both guidelines a thorough medical history incorporating aspects such as motivation, former therapeutic attempts, and psycho-social conditions is recommended, as is a physical examination that should also be performed before the therapy commences. Both guidelines advocate a basic program for obesity therapy that comprises three main blocks: dietetic treatment, increase in physical activity, and behavior therapy.

Dietetic treatment

Weight loss through dietetic treatment is always accomplished by causing an energy deficit. Four different mechanisms are known:

- Reduction in fats with unlimited carbohydrates.
- Reduction in fats, carbohydrates, and proteins. This type of diet is the standard therapy for obesity according to the DAG.
- Replacing one to two main meals with formula products.
- Complete formula diet. This is advocated only in special cases for limited periods of time.

Weight loss through very low-calorie forms of food (< 800 kcal/d or < ca. 3350 kJ/d) or total fasting are not recommended by either the BDA or DAG.

Physical Activity Therapy

In addition to dietetic treatment, energy usage via intense physical activity is recommended. The DAG recommends five hours of additional physical activity per week, which translated to approximately 2500 kcal (= ca. 10.470 kJ) per week. Physical activity is especially recommended during the weight stabilization phase after the weight reduction phase (about 3 hours per week, 1500 kcal = ca. 6280 kJ).

Behavior therapy

Behavior therapy is recommended to support long-term weight loss. In the BDA manual, specific techniques and relevant applications are elucidated. Behavior modification techniques are explained in section 1.3.3.

Weight loss programs

Weight loss programs are briefly explained in both guidelines. Experts advise against one-sided diet forms (e.g., Atkins Diet) as well as against the commercial Optifast program, which can initially bring about weight reduction, but in the long term often bring about weight gain. The Weight Watchers method is seen as helpful to people who are moderately obese.

Drug-based therapies and surgical interventions

A drug-based or surgical therapy should be considered only in exceptional cases. A failure of the basic program (nutrition, physical activity, behavior therapy) is considered to be one of these exceptional cases (less than 5% weight reduction after 3 to 6 months), as is the simultaneous presence of serious risk factors or co-morbidities.

Long-term weight stabilization after an initial weight reduction is seen as a special challenge that presupposes a permanent alteration of lifestyle, low-fat diet, physical activity, and psycho-social support in the form of psychotherapy and self-help groups. With specific co-morbidities or therapy problems, the DAG recommends referring the patient to a specialized, multidisciplinary obesity center (Hauner et al., 2000).

Treatment success

Seen in the long-term, treatment success rates are very disappointing. Many programs that emphasized changes in nutrition and behavior and aimed at cardiovascular risk factor reductions showed little or no success (Wadden, 1993; Glenny, O'Meara, Melville, Sheldon & Wilson, 1997; Taylor et al., 1991; Wing & Phelan, 2005). Margraf (BDA, 2002) concluded that the treatment for obesity "is equally frustrating for physician and patient. Unsuccessful treatment and treatment cancellation and relapses are the rule, not the exception" (p.28).

Moderate weight reduction can improve metabolic as well as cardiovascular diseases (Goldstein, 1992; Scottish Intercollegiate Guidelines Network, 1996) and can cause a significant decrease in total mortality (Williamson et al., 1995). The health consequences accrued during periods of excess weight are not always reversible (Pi-Sunyer, 1993). Altogether, it can be said that the higher the degree of obesity, the more difficult, expensive, and complex treatment becomes (Weintraub, 1992).

1.2 OVERWEIGHT AND OBESITY IN PRIMARY MEDICAL CARE

According to the DAG (2007) the GP plays a central role in long-term treatment of overweight and obese patients.

GPs meet an unselected, wide range of patients and have to decide which patients they should (can) treat themselves and which should (must) be referred to another specialist. In contrast with other specialty physicians who only meet patients when they are sick, GPs also have the opportunity to intervene at a very early stage and be active in primary prevention. Thus, the prevention and treatment of obesity (as well as pre-obesity stages) is a primary physician's responsibility. In addition, overweight and obese patients visit their GPs more often than normal weight patients do (Thode, Bergmann, Kamtsiurs & Kurth, 2005). The German Health Insurance Act SGB V §73b stipulates that health insurance companies have to offer GP-centered care models across the country by 30 July 2009. Nonetheless, this has not yet happened for all insurance companies and all regions. GP-centered care is a form of medical treatment in which GPs assume a gatekeeping function; they are the first medical professionals whom patients see. A GP coordinates different treatments, refers patients to specialists if needed, and has a complete overview of patients' general health situation. Thus, treatment quality should increase while costs of unnecessary multiple examinations and hospitalizations should decrease.

1.2.1 THE GP'S ROLE IN OVERWEIGHT AND OBESITY TREATMENT

GPs see overweight and obese patients on a daily basis, but rarely confront them about their excessive weight (Heintze, Metz, Dieterich, Schwantes & Wiesner, 2008). This could be due to the fact that physicians have little faith in their ability to impart lifestyle counseling successfully (Hebl & Xu, 2001). In addition, there is no consensus whether the treatment of overweight and obesity is the responsibility of physicians (Cade & O'Connell, 1991; Fogelmann et al., 2002; Hunt, Kristal, White, Lynch & Fries, 1995; Baum et al., 1999), even though it was shown that physicians' advice on changing a non-healthy lifestyle significantly increases attempts to remediate behavior (Galuska, Will, Serdula, & Ford, 1999; Hunt, Kristal, White, Lynch & Fries, 1995). Physicians often view excess weight as the sole responsibility of patients; at the same time they observe that patients often want to transfer this responsibility onto their physicians (Epstein & Ogden, 2005; Ogden & Flanagan, 2008). Ogden and Flanagan (2008) found that GPs do not define excess weight

as a medical problem and so medical help does not seem appropriate in their eyes. In another study, GPs report low motivation to treat overweight and obese patients and consider it a waste of time (Mercer & Tessier, 2001). Negative cognitions also seemed to be a reason why GPs avoid treatment of overweight or obesity. According to a study by Foster et al. (2003), overweight and obese patients are often perceived as being difficult to deal with, unattractive, ugly, and non-compliant. Stigmatization and prejudices are already shown in previous studies (Maddox & Liederman, 1969; Price, Desmond, Krol, Snyder, & O'Connell, 1987; Ruelaz et al., 2007). GPs also see their own personal training as a problem. They do not feel adequately prepared to give counseling to overweight and obese patients (Fisseni, Golücke & Abholz, 2003; Fogelmann et al., 2002; Bocquier et al., 2005). Cade & O'Connell (1991) show that physicians feel they could improve their competence in dealing with overweight or obese people only through personal experience, not by better training.

When treating overweight and obesity, many GPs feel helpless (Fogelmann et al., 2002; Foster et al., 2003). GPs express low personal motivation to treat excess weight and also underestimate their patients' motivation (Befort et al., 2006). In contrast, patients believe that they can lose more weight than estimated by GPs.

Physicians view the media as well as family surroundings as the most important influences on development and treatment of overweight and obesity, and consider their own influence to be small (Cade & O'Connell, 1991). Not only their personal attempts to help patients but also other treatment options are often deemed ineffective (Ogden & Flanagan, 2008). However, Ruelaz et al. (2007) arrived at a different result, showing that GPs see weight reduction counseling as helpful and believe that they are effectively able to help their patients.

The pharmacological treatment of excess weight through anti-obesity drugs is rare in Germany (Wirth, 2002). One study from Epstein & Ogden (2005) showed that some physicians use these drugs to improve their relations with patients, in the belief that patients expect these therapy options from them. In another study asking about the methods utilized most often in consultations with overweight and obese patients, GPs cite above all personal counseling and the distribution of information about healthy nutrition (Cade & O'Connell, 1991). Their most frequent recommendation is that people

eat less, followed by the recommendation to eat lower-calorie foods and increase the amount of physical exercise. In another study, similar results were found, but here GPs cite physical activity therapy as the most frequent advice, followed by the advice to eat less (Fogelmann et al., 2002). Psychological interventions are rarely recommended by GPs (Fogelmann et al., 2002).

1.2.2 THE CHECK-UP 35

The “Check-up 35” is a regular health examination approved by the association of statutory health insurance physicians (KV Berlin, 2010). It is used in this dissertation to analyze treatment of overweight and obese patients in primary care. The Check-up 35 aims at prevention and early recognition of heart and circulatory diseases as well as diabetes mellitus. It can be carried out by GPs, internal medicine specialists, or by practical physicians. Early recognition of risk factors – in the domain of prevention – should prevent long-term health problems and enable early treatment (*Bundesausschuss der Ärzte und Krankenkassen*, National Committee of SHI-Physicians and Sickness Funds, 2005). The Check-up 35 comprises an anamnesis, a physical examination, certain laboratory tests (total cholesterol, blood glucose, urine protein, glucose, erythrocytes, leucocytes, and nitrates), and a final counseling session on individual risk factors and specific intervention possibilities (*Bundesausschuss der Ärzte und Krankenkassen*, 2005).

Participation in Check-up 35 examinations is covered according to § 25 SGB V of the Health Insurance Act for all insurants from age 35 onwards, every two years (SGB V). Participation rates for Check-up 35 are increasing in Germany, albeit at a very slight rate: In 1992, 10% of those eligible participated, whereas between 2002 and 2004, about 17% did (ZI, 2008). In an international comparison, it was seen that patients in other countries participate more frequently in preventive care examinations (Fisseni, Golücke & Abholz, 2003). Younger and higher-educated patients are more likely to participate in the examination (Sönnichsen, Sperling, Donner-Banzhoff & Baum, 2007). It is also shown that patients who often consult with their primary care physicians are more likely to participate (Donner- Banzhoff, Sadowski & Baum, 1995). Zimmerli, Ramseier, Hengstler, Gyr and Battegay (2004) demonstrate that in many cases the preventive care examinations are used for purposes that have little to do with those initially intended. The authors call it a “hidden agenda”. Therefore, special attention has to be paid to

patients' underlying feelings and expectations. This is supported by the results of a study by Connelly and Mushlin, (1986), according to which psycho-social problems are the most important reason why a person participates in a health examination. Most patients do not consult with their GP because of excess weight, but because of the resultant health problems (Central Research Institute of Ambulatory Health Care in Germany, 2008).

Apart from its screening function, the Check-up 35 provides an opportunity for individual preventive consultations. However, it is known that psycho-social themes are often avoided during these consultations (Glöser, 1998). A British study by Steptoe, Doherty, Kendrick, Rink and Hilton (1999) supports these findings and attributes counseling avoidance to physicians' lack of competence in such fields.

Our own studies show that GPs have a low esteem of the usefulness of the Check-up 35 and thus often combine it with other examinations (Regus et al., 2010). Other German studies point in a similar direction; GPs, in large part, are dismissive of standardized screening methods (Othman, Wollny, Abholz & Altiner, 2008; Fisseni, Golücke & Abholz, 2003). Instead, physicians advocate individualized primary prevention that is tailored to patients' personal preferences and risks. In Regus et al.'s (2010) study, it was also shown that particular aspects of the Check-up 35 are rated highly by GPs, e.g., maintaining and intensifying physician-patient relations as well as ensuring continual patient treatment. From a study in New England it emerged that doctors highly value periodic health examinations (Luckmann & Melville, 1995).

International studies show that patients have a keen interest in regular health examinations (Oboler, Prochazka, Gonzales, Xu & Anderson, 2002). Citing numerous study results, Laine (2002) explains that patients who often let themselves be "thoroughly checked" feel healthier in proportion to how often and how intensely they are examined. Furthermore, the ritual of regular examinations has significance for many patients that foster a more positive physician-patient relationship, due among other factors to physical contact during examinations. Standardized screening thus also seems to build a more positive physician-patient relationship and ensures a more continual treatment of patients, in addition to its intended goal of identifying risk factors. Other evidence indicates that a good physician-patient relationship can have a preventive effect per se (Othman, Wollny, Abholz & Altiner, 2008).

1.3 HEALTH PSYCHOLOGY, OVERWEIGHT AND OBESITY

Over the last years, several models explaining and predicting health behavior have been developed in the field of health psychology. These ideas were integrated into behavior modification intervention programs and play a significant role in treatment of overweight and obesity. For instance, human nutrition behavior as one key behavior affecting excess weight is influenced by biological factors (e.g., hormone regulation), but also by social and psychological factors.

Psychological factors can be emotional and cognitive. Emotional factors that explain nutrition behavior can have a positive (pleasure, relaxation), or negative (stress, fear, depression) valence. In situations that are perceived as positive, e.g., during convivial gatherings, people tend to eat more. Negative emotions can lead to increased eating as well; however, they can also lead to changes in the nutritional composition of the foods that are eaten. The experienced stress reduction during the food intake period then diminishes the experienced negative emotions. Studies show that people who eat when they are in a bad mood eat more or higher-calorie foods, can differentiate their emotions less, and dispose of fewer alternatives on how to cope with these emotions (Pietrowsky, 2006). Certain types of foods such as sweets stimulate – via their serotonergic transmitter system – an emotionally uplifting effect. This connection can also be learned and can lead to a conditioned excessive intake of high-calorie nutritional substances. Cognitive factors influencing nutrition behavior are, among others, risk perceptions, perceived efficacy, and attribution tendencies, which will be described in more detail in section 1.3.2.

Social factors that contribute to nutrition behavior are experienced social norms and social comparisons, experiences taken from model learning, social support, and socio-demographic variables. In higher social strata, it is socially preferable to eat a low-fat diet, whereas in the lower strata of society, a fast-food type of diet is socially acceptable, meaning that high-fat foods are more often consumed. However, high-fat nutrition is often more expensive than low-fat nutrition (Pietrowsky, 2006). An explanation for different nutrition behavior among differing social strata therefore cannot be found in costs, but rather in different knowledge about nutrition: People from higher social strata often know more about positive benefits that derive from healthy eating. They also have a higher degree of self-efficacy that in turn influences them to eat in a healthier manner.

The social norm of a group concerning what nutrition is preferred and social comparison processes often play a significant role in nutrition behavior and lead to a stabilization of behavior. Social support plays a significant role when the affected person attempts to alter his or her nutrition behavior. Socio-demographic factors usually do not directly affect nutrition behavior, but determine any changes caused by changes in the norms of a social group. Nutritional habits are e.g., dependent upon sex, age, and marital status (Pietrowsky, 2006).

1.3.1 MODELS OF HEALTH BEHAVIOR

„Health behavior encompasses all behaviors that promote and sustain health, prevent harms and restrictions to it, and prolong life expectancy. Health behavior can also mean giving up risky behavior, that is, abstaining from or reducing behaviors that jeopardize health.“ (Lippke & Renneberg, 2006, p.35).

Behavior change theories and models from the social and behavioral sciences explain the biological, cognitive, behavioral, and psycho-social or environmental determinants of health-related behaviors. Thus, they also define interventions to produce changes in the knowledge, attitudes, motivations, self-confidence, skills, and social support required for behavior change and maintenance.

Health behavior models fall into two groups. In *continual prediction models*, certain variables are believed to correctly predict concrete future health behavior. Depending on how strongly a certain variable is expressed, an individual can be classified on a continuum of behavioral probability. Important models are the *theory of planned behavior* (Ajzen, 1991), the *health-belief model* (Becker, 1974), as well as Bandura's *social cognitive theory* (Bandura, 1979). In these models, behavioral changes happen through shifting individual dispositions on a continuum of probability.

The second group - *dynamical stage models* - differentiate qualitatively different phases that are part of behavior modification processes. People can be classified into different stages based on psychological differences. For every stage there is a different prediction model. Examples of these models are the *trans-theoretical model* of behavior modification (Prochaska, DiClemente & Norcross, 1992; Prochaska & Velicer, 1997) as well as the *health action process approach* (HAPA) (Schwarzer, 1992). These models are

important above all for selecting appropriate individual intervention strategies. The HAPA model will be illustrated as exemplary of this type of model.

Health Action Process Approach (HAPA)

This hybrid model integrates linear (goal setting, planning) and stage classifications and was first described by Schwarzer (1992). Two basic concepts define this model: One sequence follows the next, and behavior modification can only occur when there is a certain degree of self-efficacy. In the HAPA model, pre-intentional motivation processes and post-intentional volitional processes are differentiated. Every phase requires specific intervention steps. In the model, changes in nutrition behavior can be described by a motivational and volitional phase. For behavior modification, an intention towards healthier nutrition is initially relevant.

The phase of intention building is dependent upon specific psychological determinants:

- **Risk perception:** Based on subjective evaluation of the degree of severity of diseases, the personal risk is assessed. Seeing personal behavior as connected with health is a necessary first step in health behavior modification. The risk perception varies with the objective risk of disease (Renner, Knoll & Schwarzer, 2000; Weinstein, 2003).
- **Outcome expectancy:** For behavior modification to succeed, the alternatives to reduce the risk must be known. It is important that people see the connection between their actions and the results obtained.
- **Self-efficacy:** Bandura's concept (1997) plays a central role in the building and maintenance of health behaviors. Self-efficacy is an individual's level of confidence in his or her own skills and persistence in attaining a desired goal – above all in stressful and unpredictable situations – and predicts future behaviors across a wide variety of lifestyle risk factors.

The intention to change a behavior depends in large part on how deeply a person trusts their abilities and competencies and how strongly someone believes to be in control of their habits. Self-efficacy is important in all phases of intention building, whereas the two other factors mentioned are important in early phases (Renner & Schwarzer, 2003a; Renner & Schwarzer, 2003b; Schwarzer & Renner, 2000).

Perceived self-efficacy, risk perception, and connections seen between behavior and results combine to build motivation for change. The phase of motivation building ends with the formulation of a goal intention. Behavioral modification becomes more likely the stronger this intention is (Abraham & Sheeran, 2000). After the intention-building phase comes the volition phase, which is divided into three sub-processes:

a. Pre-action phase

In this phase concrete plans are made to modify behavior. Conditions and possibilities for actually modifying specific behaviors are contemplated; the when, where, and how regarding the treatment is established; and alternative ideas of how to act are generated. This phase ends with one or more intentions to execute a specific action (Gollwitzer, 1999). The intention goal is now rendered more concrete and becomes the action goal. Action goals are consequences of an if-then structure showing that specific situations trigger determined ways of acting. Self-efficacy, here the conviction that a certain habit can be successfully changed, plays a significant role in detailed planning.

b. Action phase

In this phase the action is initiated and continued. The execution of the action is constantly monitored, in order to protect action and intention from negative influences. Strategies that do this are the ability to delay gratification (Mischel, Shoda & Peake, 1988), the hierarchization of long-term goals into reachable short-term goals, and constant emotional and attention regulation (Kuhl, 1996). These strategies are helpful until the new behavior has become a habit. Self-efficacy is also of significant importance in this phase and affects how hard a person strives to arrive at the set goal.

c. Post-action phase

After being initiated, an action is evaluated; successes and failures are interpreted. Hence, the individual's explanations of results play an important role. If successes are attributed to the person's own competencies, the strength of volition and self-efficacy increase.

For the volition phase, detailed treatment planning with reachable goals, establishment of reward mechanisms, positive self-efficacy, and coping strategies are essential in order to withstand temptation and to overcome setbacks successfully.

When planning the intervention, it is essential to take into account in which phase a person finds him- or herself and to act in a phase-specific way. The implications of this

model, that interventions should be phase-specific and individually tailored, can also be found in the guidelines for the treatment of obesity.

1.3.2 COGNITIONS – ATTRIBUTIONS AND LOCUS OF CONTROL

Cognitive factors influence nutrition behavior and are important to consider when counseling patients and planning interventions.

Attribution

People attribute specific events and experiences to specific causes. Attribution styles differ inter-individually and can be described on three dimensions (Weiner et al., 1971):

- Internal vs. External
- Stable vs. Variable
- Controllable vs. Uncontrollable

The way in which individuals give attributions to success and failure leads to specific emotional reactions, influences self-worth, and determines how hard they work in subsequent situations. Hence, the type of attribution used determines the probability of success in future situations.

Locus of Control

This attribution dimension was first described by Rotter (1966). Locus of control signifies whether people see causes of certain actions or events as stemming from themselves (internal locus of control) or from other people or non-controllable external factors (external locus of control). In the discussion of causes of overweight and obesity, there is often a clear distinction between behavioral causes, for which the affected person is responsible, and non-behavioral causes, whose origins are arbitrary. First research in Jane Ogden's workgroup (2001; 2008; Epstein & Ogden, 2005) shows that physician and patient attributions regarding causes of, consequences of, and solutions to overweight contrast widely (table 1.3-1). Physicians tend to focus on behavioral causes, whereas patients attribute their overweight and obesity to genetic and hormonal causes. Foster et al. (2003) confirm the fact that GPs tend to attribute excess weight to the behavior of those affected. In a new study, Ogden was able to replicate her results and show a preference on GPs' part to attribute excess weight to "psychological" or "behavioral"

causes, whereas patients consider biological and behavioral causes to be important (studies 2 and 5 of this dissertation, Ogden & Flanagan, 2008). When comparing perspectives of GPs and affected patients, Ruelaz et al. (2007) found significantly divergent points of views regarding the causes and possible treatments of excess weight. A comparison of physician and patient attributions shows that the consequences of being overweight or obese are also viewed in different ways. Patients emphasize social consequences, such as greater difficulty in finding a job, whereas physicians focus on medical consequences such as the development of diabetes mellitus (Ogden & Flanagan, 2008). Physicians and patients also diverge in their opinions regarding therapy options: GPs see the person of concern as being the most important factor in treatment, whereas patients place a higher significance on their GP or other counseling person. Ogden characterizes the model found in her patients as “self-serving”, given that patients see internal uncontrollable factors as being the cause of their excess weight but expect help from external factors. The model used by GPs is described by Ogden as “victim-blaming”, given that internal controllable factors were seen as causes and as potential solutions.

Table 1.3-1: Attribution tendencies of physicians and patients regarding causes of, consequences of, and solutions to excess weight.

	Victim-blaming model (Physicians, N=89)	Self-serving model (Patients, N=599)
Causes	Internally controllable	Internally uncontrollable
Consequences	Medical consequences	Social consequences
Solutions	Internally controllable	Externally controllable

According to Ogden et al., 2001; Ogden & Flanagan, 2008

The results of Ruelaz et al. (2007) show exactly the opposite: Patients more likely wish to solve their problems themselves and do not want GPs’ help. GPs, on the other hand, are convinced that they play an important role in the treatment.

Taking all these findings into account, missing therapy success can also stem from a “mismatch” between physician and patient perspectives that directly affects not only interpersonal communication but also the success of intervention.

1.3.3 INTERVENTIONS

1.3.3.1 COUNSELING STRATEGIES

The relation between communication and treatment success has been proved in previous studies (Safran et al., 1998; Stewart, 1995). Changing health behaviors has the greatest potential of any current approach for decreasing morbidity and mortality and for improving the quality of life among diverse populations (Koop, 1996). McGinnis and Foege (1993) link 50% of mortality in the United States from the ten leading causes of death to lifestyle-related behaviors, such as tobacco use, poor dietary habits and inactivity, alcohol misuse, illicit drug use, and risky sexual practices. Effective interventions typically involve behavioral counseling techniques.

A promising counseling technique is motivational interviewing (Miller, 1983; Rollnick & Miller, 1995), which is explained in more detail in section 3.3.3. Another promising technique, the 5A concept (Whitlock, Orleans, Pender & Allan, 2002), provides the primary physician with a framework for counseling and is presented in section 3.3.4.

1.3.3.2 BEHAVIOR MODIFICATION

Next to an alteration in nutritional and physical activity, the integration of behavior therapeutical elements is recommended to support long-term weight loss (U.S. Preventive Services, 1998; BDA, 2008; DAG, 2007). There is a wealth of evidence supporting the use of behavior therapy for treating obesity (Wilson & Brownell, 2002; Wing, 1998; 2002). Patients who finish a therapy have a 10% weight loss in relation to their initial weight. But during the subsequent three years, this weight loss is mostly regained (Jeffery et al., 2000; Perri, 1998; 2002; Wilson & Brownell, 2002). Thus, “how to maintain therapy success over a long term period remains the biggest question in obesity management” (Perri, 1998, S. 526). There are two types of long-term therapy in which weight gain after conclusion of therapy is unlikely. The one is long-term drug therapy, which facilitates maintenance of weight. However, next to damaging side effects, low acceptance and compliance are potential problems (Cooper, Fairburn & Hawker, 2008). The second possibility of hindering new weight gain is long-term psychotherapy (Perri, 1998; 2002; Perri et al., 2001). Cooper et al. (2008) recommend the integration of cognitive and behavioral therapeutical elements. In the guidelines concerning obesity treatment the following behavior modification techniques are suggested:

- Behavior analysis by self-observation, e.g., nutrition and physical fitness journals
- Investigation of contingencies (connections between causal conditions and behavior)
- Practice of flexibly controlled eating habits rather than rigid behavioral control
- Learning stimulus control techniques in order to reduce stimulus to eat
- Use of reinforcement mechanisms that stabilize the new eating habits and prevent relapses
- Mobilization of social support
- Methods of relapse prophylaxis and management

GPs challenge in obesity treatment is to ensure that affected patients receive a treatment combining aspects of nutrition, physical activity, and behavior modification.

1.4 AIMS OF THE STUDIES

In order to adequately describe the medical treatment situation of overweight and obese people in primary care, the studies incorporate qualitative and quantitative approaches. This comprehensive analysis should help to identify and specify optimization potential in the treatment of overweight and obese patients, especially in outpatient care. Five studies on the counseling of overweight and obese patients in primary care are presented:

- 1) To assess health related quality of life and perceived stress level
- 2) To examine self-efficacy, locus of control and attributions in affected patients
- 3) To characterize physician-patient encounters and gain a detailed insight into the contents of preventive consultations with overweight and obese patients
- 4) To assess GPs' ability to involve patients in the decision making process and describe the integration of motivational interviewing techniques
- 5) To describe GPs attitude towards counseling overweight and obese patients.

Taken together, these studies provide a complete description and evaluation of the medical treatment situation for overweight and obese patients treated by GPs. Conclusions and recommendations for overweight and obesity care in the future are discussed.

2 STUDIES 1 – 5

2.1 STUDY 1: PERCEPTION OF STRESS AND QUALITY OF LIFE IN OVERWEIGHT AND OBESE PEOPLE – IMPLICATIONS FOR PREVENTIVE CONSULTANCIES IN PRIMARY CARE

Metz, U., Welke, J., Esch, T., Renneberg, B., Braun, V. & Heintze, C. (2009). Perception of stress and quality of life in overweight and obese people – Implications for preventive consultancies in primary care. *Medical Science Monitor*, 15(1), 1-6.

2.1.1 SUMMARY

Background

The increasing prevalence of obesity requires especially primary health care providers to act. General Practitioners (GP) in particular have the opportunity to motivate patients in early risk stages to follow weight reduction programmes before manifestation of associated diseases. In order to conduct preventive consultancies it is necessary to explore the individual physical and mental health status of patients. Aim of this study was to examine quality of life and perceived level of stress in overweight and obese patients treated in primary care.

Material and Methods

123 patients, following a health Check-up 35 realized by their GP, rated self-reported questionnaires regarding quality of life and perceived level of stress (SF-12, PSS). Following descriptive analysis, differences in dependent variables related to BMI, sex and age were tested using ANOVA and regression analysis (SPSSv15.0).

Results

Restrictions in all parameters of mental health for overweight and obese patients in primary care were shown. Especially patients with a BMI above 30kg/m² reported a decreased level of quality of life.

Conclusion

Health care providers should be aware of cumulative restrictions in mental health of their overweight patients. The findings provide essential implications for all health care professionals in primary care doing preventive consultancies with obese clients.

Key words: obesity, primary care, quality of life, stress

2.1.2 BACKGROUND

Severe obesity is one main risk factor for the development of cardiovascular disease (1), which is the most important cause of death in industrialized countries (2). WHO (3) called obesity an epidemic phenomenon which demands a long term care. General Practitioners (GP), as continuous accompanists of patients, are especially asked to start interventions in early stages of overweight and prevent manifestation and co-morbidities. Besides, it was shown that overweight patients tend to see their GP more frequently than others (4). Trust and belief in a certain therapy and the person delivering this intervention, i.e., GP, is an important factor for compliance, adherence and in conclusion for success of a medical strategy (5). Since 1989 the German health system offers a primary preventive health examination (so-called Check-up 35). This instrument refers to the cardiovascular risk status covering a physical examination, assessment of several clinical parameters (e.g. blood pressure, cholesterol), a medical history and a final consultancy about risk factors, their consequences and possible interventions. Every publicly insured patient older than 35 years is invited to join the Check-up 35, conducted by GPs in two year intervals.

The present study focused on overweight (BMI: 25-29.9 kg/m²) and obese (BMI \geq 30kg/m²) patients in these Check-up 35 settings and aimed at identifying key aspects regarding psychosocial well-being. Perceived level of stress (PSS) and quality of life (QoL) are important factors for well- being and general health status. Therefore these dimensions should be considered in consultancies.

Both factors, QoL and PSS and their importance for prevention and treatment of obesity, are currently not sufficiently investigated in primary care settings. However, especially GPs should play an active role in addressing the issue of obesity with their patients.

2.1.2.1 QUALITY OF LIFE

Several studies investigated the relationship between QoL and obesity, mainly in context of interventions. Evidence for the impairment of QoL caused by obesity is existing (6;7). Wee and others (8) showed a significant correlation between an increasing body mass indices (BMI) and a decrease in the physical component score (PCS) of QoL and thus supported other findings in the field (7;9;10). However, conflicting results exist regarding the mental component score (MCS) of QoL in overweight and obese people: Only few studies found significant associations between BMI and decreased MCS in obese patients (11), while many reported either no relation (8;10) or a curvilinear relationship (12) between BMI and MCS.

2.1.2.2 PERCEIVED STRESS

Contrary to the many reports on QoL and obesity, there are only a few studies investigating the relation between bodyweight and perception of stress. We hypothesize that stress as a risk factor for development of coronary heart disease (13;14) plays a major subjective role in life of obese patients and should be considered and adequately treated by GPs. Many studies showed that people perceive more stress who experience greater demands or challenges (like serious diseases or low income) and have a lack of adequate resources for coping with stressors (15-17).

Delahanty et al (18) found a significant correlation between higher BMI and an increased level of perceived stress.

Additionally, the influence of perceived stress on weight gain was demonstrated (19). One possible relation between PSS and BMI is described by Hyman (20): hormonal changes in association with chronic stress are responsible for increased food- intake followed by weight gain. Contrary, acute stress causes less appetite.

However, it is still ambiguous whether obesity is an outcome of an increased level of perceived stress or whether obesity causes a higher level of stress, or both. GPs should discuss the individual relationships with their obese patients and develop specific solutions for this potential vicious circle.

2.1.2.3 INTERACTION OF QUALITY OF LIFE AND STRESS

It has been demonstrated that a significant decrease of QoL can be an indicator of higher levels of perceived stress (21). We suggest, GPs should be aware of mental health

problems, especially if these dysfunctional factors cumulate in obese patients. It can be hypothesized that both, a high level of perceived stress and a restricted quality of life, have a cumulative effect on development and maintenance of overweight.

2.1.3 MATERIAL AND METHODS

Eligible patients were 35 years and older, German-speaking, presently participating in a Check-up 35 program at their GP and had a BMI of 25 kg/m² and higher. The patients were free from depression, other serious mental disorders, severe cancer and cognitive handicaps.

The study was approved by an independent ethic committee. An informed consent was obtained for publication from each participant and GP.

123 participants out of 16 GP surgeries completed the self-report inventories. Of these, 111 patients provided complete information on quality of life and perception of stress. Socio- demographic variables and physiological data (blood pressure, level of cholesterol) were taken as well. On average, each GP surgery provided questionnaires of eight patients.

Body Mass Index (BMI) was calculated by self- reported weight (in kilograms) divided by squared height (in meters). We categorized data into three groups: overweight (25-29.9 kg/m²), obesity (grade I: 30-34.9 kg/m²) and severe obesity (\geq 35kg/m²) according to standard guidelines (3).

2.1.3.1 MEASUREMENT

The SF12 (22) was used for the assessment of quality of life. Physical (PCS) and mental component score (MCS) were calculated.

The fourteen- item version of the Perceived Stress Scale PSS (23) was used. It measures the degree to which situations are appraised stressful by individuals. Items assess how unpredictable, uncontrollable and overloaded respondents rate their lives. The answers are noted on a 5-point Likert-scale. One sum score is determined, higher values indicate an increased level of PSS.

2.1.3.2 DATA ANALYSIS

PCS and MCS as the two components of QoL were considered separately in the analyses. We used Pearson correlation coefficients and partial correlation coefficients to describe

associations between QoL, perception of stress, BMI and other variables, e.g., age. We calculated t-tests for determining deviations from norm population and other samples with obese patients. χ^2 -tests were used for categorical variables and analysis of variance (ANOVA) for continuous ones. Two tailed p- values less than 0.05 were considered statistically significant. We used regression analysis to quantify the influences that can be explained in the dependent variables MCS, PCS and PSS. All statistical analyses were conducted with SPSS v15.0.

2.1.3.3 SAMPLE

Average age of participants was 58.41 years (SD: 9.69) and mean BMI of 32.82kg/m² (SD: 4.83). BMI was not significantly associated with social class; neither with age nor with sex (p>.05). Table 2.1-1 shows additional characteristics of the sample (n=123).

Table 2.1-1: Socio-demographic and physical characteristics of the sample

Characteristics	N (%)
Gender	
Female	77 (62.6)
Male	46 (37.4)
BMI in kg/m²	
25-29,9	40 (32.5)
30-34,9	47 (38.2)
≥35	36 (29.3)
Social class (regarding Winkler (41))	
Lower	18 (16.6)
Middle	64 (59.3)
Upper	26 (24.1)
Blood pressure in mmHG	
< 140/90	79 (76)
> 140/90	25 (24)
Cholesterol in ml/dl	
< 200	45 (42.7)
> 200	58 (56.3)

2.1.4 RESULTS

2.1.4.1 QUALITY OF LIFE

Overall the physical component score (PCS) in the sample was 41.96 (SD=9.67), where as a norm population (24) shows a mean score of 49.03 (SD=9.35), indicating a higher level of physical QoL in norm population compared to obese and overweight patients. This difference is statistically significant ($t=7.8$, $p<0.001$). Table 2.1-2 shows mean scores for PCS in our sample regarding age, sex, BMI as well as social class. Significant differences indicate that increasing age is associated with decreased PCS as well as an increase of social status is connected with an elevation in PCS.

Table 2.1-2: Physical Component Score of SF 12 in overweight and obese patients

PCS		N	Summary scores mean (SD)	p-value
Age	35 – 50	26	45.57 (7.61)	.031*
	51 – 60	38	42.33 (10.38)	
	> 61	39	39.58 (9.34)	
Sex	Women	68	41.59 (9.98)	>.05
	Men	43	42.56 (9,25)	
BMI	25-29,9 kg/m ²	34	43.24 (9.69)	>.05
	≥ 30 kg/m ²	77	41.40 (9.67)	
Social class	Lower	17	37.88 (11.01)	.047*
	Middle	57	41.58 (9.79)	
	Upper	26	45.24 (7.58)	

* p-value < 0.05

Pearson's correlation showed that BMI and PCS are significantly associated ($r=-.217$, $p<0.05$).

A linear regression analysis with BMI, age and social class as predictors for PCS had an adjusted r^2 of .144 (table 2.1-3).

Table 2.1-3: Regression analysis regarding PCS

Predictor variables	Standardized Beta	T- value	p-value
BMI	-.221	-2.311	0.023*
Age	-.276	-2.949	0.004**
Social class	.198	2.084	0.040*

Predictors BMI, age, social class * p-value < 0.05, **p-value <0.01

Comparisons with other overweight patients (8) showed that scores of our sample were significantly lower in the physical dimension of QoL ($t=3.35$, $p<0.001$). Compared with a sample ($N=1890$, (24)) of patients suffering from chronic or acute diseases ($t=4.44$, $p<0.001$) PCS was significantly lower in overweight and obese patients.

In comparison to the norm population ($M=52.24$, $SD=8.10$, (24)) the entire sample of overweight and obese patients ($M=47.39$, $SD=10.92$) reported poorer scores of mental health (MCS). This difference is statistically significant ($t=6.09$, $p<0.001$).

A one-way ANOVA revealed significant differences in the mental component of QoL for different age-groups (table 2.1-4). Older people scored higher in MCS. No significant differences for sex, social class and BMI groups were found. In comparison with other overweight patients (8), MCS score in our sample was significantly lower ($t=6.62$, $p<0.001$).

Table 2.1-4: Mental component score of SF12 in overweight and obese patients

MCS		N	Summary scores mean (SD)	p-value
Age	35 – 50	26	41.58 (10.96)	.006**
	51 – 60	38	48.34 (11.75)	
	> 61	47	49.84 (9.1)	
Sex	Women	68	47.67 (10.45)	>.05
	Men	43	46.95 (11.74)	
BMI	25.00-29.9 kg/m ²	34	47.16 (11.21)	>.05
	≥ 30 kg/m ²	77	47.49 (10.86)	
Social class	Lower	17	48,05 (12,72)	>.05
	Middle	57	47,55 (10,70)	
	Upper	26	46,79 (11,01)	

* p-value < 0.05, **p-value <0.01

Compared with a sample (N=1890) of patients suffering different chronic or acute diseases (24) MCS in our sample was significantly lower ($t=4.41$, $p<0.001$).

No significant correlations between PCS and MCS were found in the present sample. Physiological parameters like cholesterol and blood pressure were associated with neither physical nor mental scores of QoL.

2.1.4.2 PERCEPTION OF STRESS (PSS)

Mean score for perceived stress in overweight and obese patients (N=109) was 24.51 (SD= 8.54, range: 6-46) and no significant differences for groups of BMI, age, sex or social class were found (table 2.1-5). Additionally, cholesterol and blood pressure were not associated with perception of stress.

Table 2.1-5: Perceived Stress in overweight and obese patients

PSS		N	Summary scores mean (SD)	p-value
Age	35 – 50	27	25.52 (7.34)	>.05
	51 – 60	37	25.22 (10.27)	
	> 61	45	23.33 (7.64)	
Sex	Women	68	24.93 (8.26)	>.05
	Men	41	23.83 (9.04)	
BMI	25.00-29.9kg/m ²	32	24.03 (8.51)	>.05
	≥ 30 kg/m ²	77	24.71 (8.60)	
Social class	Lower	17	26.12 (10.41)	>.05
	Middle	60	23.78 (8.10)	
	Upper	22	25.14 (8.64)	

Compared to a norm sample (M=19.62, SD=7.49 (23)), our sample perceived significantly more stress ($t=6.62$, $p<0.001$).

2.1.4.3 RELATIONS BETWEEN PCS, MCS AND PSS

Both dimensions of QoL were significantly correlated with PSS (table 2.1-6). These correlations are about the same when age is controlled. No relations between PCS and MCS were found.

Table 2.1-6: Spearman Rho correlation coefficients regarding PSS, PCS and MCS in overweight and obese patients

		PSS	PCS	MCS
PSS	r_s	-	-.208*	-.688***
	p-value		.035	.000
PCS	r_s		-	.069
	p-value			.472
MCS	r_s			-
	p-value			

* p-value < 0.05, *** p-value < 0.001

2.1.5 DISCUSSION

The study examined quality of life and perceived stress in primary care patients with a BMI ≥ 25 kg/m². Aim was to clarify whether these two factors are relevant in overweight and obese patients and should therefore be considered in preventive consultations by GPs.

Physical aspects of quality of life were significantly reduced in our sample compared to scores of a norm population, but also in comparison to other overweight patients with several morbidities. Corresponding with Finkelstein (12) we found a significant correlation between BMI and the physical component score. Our analyses suggest that reduced physical quality of life is related to higher BMI.

Mental component score of quality of life was also lower in our sample in comparison with norm sample and other overweight and ill patients. But we found no differences between BMI- groups in this dimension of quality of life. The curvilinear trend indicated that patients with moderate obesity (BMI: 30-34.9 kg/m²) feel more negatively mentally affected than patients with overweight (BMI: 25-29.9 kg/m²) or severe obesity (BMI ≥ 35 kg/m²).

Accordingly to Fontaine and Barofsky (6), we conclude that obesity has a higher negative effect on physical aspects of quality of life than on mental ones, which can be partly explained by actual physical restrictions caused by higher body weight. Mental aspects of quality of life might be reduced due to stigmatization and phenomena of social exclusion in relation with a high bodyweight. On the other hand it seems as if self-protection

mechanisms are effective and shelter mental quality of life. The actual objective severity of obesity, in our study conceptualized as high BMI, seems to be less important for the development of mental distress which explains fairly the missing link between BMI and the mental component score (7).

The enormous overall restrictions in quality of life in our sample can be partly explained by the fact that other studies measured mainly overweight people seeking any kind of treatment (7) and hoping for a solution. This might result in a better perceived quality of life. In contrast, our patients were all enrolled in GP settings and not dominantly treated regarding their bodyweight. We had a comparatively old sample with a high mean BMI. Both variables, age and BMI, were found to be associated with a decreased physical component score in several studies (8;22) and lead to additional explanations for reduced quality of life.

Missing links between BMI and mental quality of life were also reported by Burns et al (25), they suggested history of weight loss as a more predictive determinant of quality of life in obese instead.

In this study, perceived stress was significantly higher for overweight and obese patients in primary care compared to a norm sample. This indicates another factor of restriction in patients' well-being. Cohen and Williamson (21) showed that women perceive more stress. In our study however, we found no significant sex-related difference. But, since two third of our sample was female this might be an explanation for high overall scores. Additionally, studies show that people seeking help, like patients in GP settings, report higher levels of stress compared to norm population (21). Besides, association between dysfunctional health behaviors like less physical exercise and higher perceived level of stress were found (21) and it is very likely that these practices are present in our overweight sample, too. Our data did not suggest a linear relationship between BMI and stress. But nevertheless, perceived stress, parallel to other psychological and behavioral factors, is a potentially modifiable variable which is important to be considered while planning intervention programs (26-31). Furthermore it is an important correlate of body weight (32-34). Patients with an elevated level of stress and a high BMI show two main risk factors for the development of a cardiovascular disease (14,35,36).

High correlation between perceived stress on one side and aspects of quality of life on the other in obese patients can likely be explained, in parts, by the fact that both instruments are measuring similar constructs: the perception of mental sequelae related to obesity. Nevertheless, the correlation underlines the cumulative mental risk in these clients. It is presumed that physical and psychological sequelae of obesity are associated with an increased level of perceived stress. GPs have to identify and consider this in consultations. Patients can be motivated by improving their physical and mental well-being, since it was shown that quality of life has a high subjective value for patients (37). Our data suggest that obesity-related medical co-morbidities are less relevant for well-being, we found no relation between physical (blood pressure, cholesterol) and psychometric parameters. Intervention programs must focus on patients' individually relevant dimensions, which may differ from doctors' ones (38). Mental health parameters should be the base for treatment decisions and trigger patients' motivation, especially under complex risk circumstances, e.g. the presence of overweight and co-morbidities.

According to a representative German health survey (4) patients with higher BMI tend to see their GP more frequently. Thus, GP should be aware of mental and physical characteristics associated with obesity. Present results have important implications for the management of obesity in primary care.

Especially quality of life plays a key role in overweight patients in primary care and should therefore be explored by GPs. Dominance of physical restrictions reported by obese patients can be used by doctors to focus on advantages related to physical components (e.g. having less restrictions).

Explanatory power of results is reduced since our sample is slightly skewed. We might have an over-reporting of motivated and engaged patients. Aside from that, it was found that the actual BMI is even higher than self-reported data indicate (39;40). Especially women tend to overestimate their height and underestimate their weight. Since two thirds of our sample was female it has to be regarded as an influence in our study. Because the results reported here are based on cross-sectional data, no inferences of causality for relations reported between dependent (physical and mental aspects of quality of life, perceived stress) and independent variables (e.g. BMI, age) can be made.

Besides, healthy patients in GP settings are rare (16), which might be a reason for missing variation in physical health status and in conclusion for missing links between physical and psychometric parameters.

2.1.5.1 CONCLUSIONS

Physical and mental aspects of quality of life as well as perceived level of stress have to be considered in prevention- oriented consultancies. GPs should be aware of a cumulative mental risk in their overweight patients. They should explore patients` perspectives on obesity and integrate these subjective norms in an individual tailored therapy. This is the only way to achieve a long- term effect of a behaviour- changing therapy.

Further research should combine quantitative and qualitative methods to investigate patients` views of obesity and help doctors to better understand patients` perspectives as well as difficulties in following the suggested interventions. Clearly, improving doctors` knowledge about the bio - psychosocial context and impact of obesity will positively influence the quality of care.

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REFERENCES

- (1) Romero-Corral A, Montori VM, Somers VK. Association of bodyweight with total mortality and with cardiovascular events in coronary artery disease: a systematic review of cohort studies. *Lancet* 2006 August;368(9536):666-78.
- (2) Tunstall-Pedoe H, Kuulasmaa K, Mahonen M, Tolonen H, Ruokokoski E, Amouyel P. Contribution of trends in survival and coronary-event rates to changes in coronary heart disease mortality: 10-year results from 37 WHO MONICA project populations. Monitoring trends and determinants in cardiovascular disease. *Lancet* 1999 May 8;353(9164):1547-57.
- (3) World Health Organization. Obesity. Preventing and managing the global epidemic. Report of a WHO consultation on obesity. WHO/NUT/NCD/981, WHO, Geneva. 1998.
- (4) Bergmann E, Kalcklösch M, Tiemann F. Inanspruchnahme des Gesundheitswesens. *Bundesgesundheitsbl - Gesundheitsforsch - Gesundheitsschutz* 2005,48:1365-1373.
- (5) Esch T, Guarna M, Bianchi E, Zhu W, Stefano GB. Commonalities in the central nervous system's involvement with complementary medical therapies: limbic morphinergic processes. *Med Sci Monit* 2004 June;10(6):MS6-17.
- (6) Fontaine KR, Barofsky I. Obesity and health-related quality of life. *Obes Rev* 2001 August;2(3):173-82.
- (7) Corica F, Corsonello A, Apolone G, Mannucci E, Lucchetti M, Bonfiglio C et al. Metabolic syndrome, psychological status and quality of life in obesity: the QUOVADIS Study. *Int J Obes (Lond)* 2008 January;32(1):185-91.
- (8) Wee CC, Davis RB, Hamel MB. Comparing the SF-12 and SF-36 health status questionnaires in patients with and without obesity. *Health Qual Life Outcomes* 2008;6:11.
- (9) Doll HA, Petersen SE, Stewart-Brown SL. Obesity and physical and emotional well-being: associations between body mass index, chronic illness, and the physical and mental components of the SF-36 questionnaire. *Obes Res* 2000 March;8(2):160-70.
- (10) Yancy WS, Jr., Olsen MK, Westman EC, Bosworth HB, Edelman D. Relationship between obesity and health-related quality of life in men. *Obes Res* 2002 October;10(10):1057-64.
- (11) Callegari A, Michelini I, Sguazzin C, Catona A, Klersy C. Efficacy of the SF-36 questionnaire in identifying obese patients with psychological discomfort. *Obes Surg* 2005 February;15(2):254-60.
- (12) Finkelstein MM. Body mass index and quality of life in a survey of primary care patients. *J Fam Pract* 2000 August;49(8):734-7.

- (13) Theorell T. The psycho-social environment, stress, and coronary disease. In: Marmot M&EP, editors. *Coronary heart disease epidemiology*. Oxford: Oxford University Press, 1992. p. 256-73.
- (14) Esch T, Stefano GB, Fricchione GL, Benson H. Stress in cardiovascular diseases. *Med Sci Monit* 2002 May;8(5):RA93-RA101.
- (15) Lazarus RS. *Psychological stress and the coping process*. New York: McGraw-Hill. 1966.
- (16) Esch T. Health in stress: change in the stress concept and its significance for prevention, health and life style. *Gesundheitswesen* 2002 February;64(2):73-81.
- (17) Esch T. Stress, adaptation, and self-organization: balancing processes facilitate health and survival. *Forsch Komplementarmed Klass Naturheilkd* 2003 December;10(6):330-41.
- (18) Delahanty LM, Meigs JB, Hayden D, Williamson DA, Nathan DM. Psychological and behavioral correlates of baseline BMI in the diabetes prevention program (DPP). *Diabetes Care* 2002 November;25(11):1992-8.
- (19) Marniemi J, Kronholm E, Aunola S, Toikka T, Mattlar CE, Koskenvuo M et al. Visceral fat and psychosocial stress in identical twins discordant for obesity. *J Intern Med* 2002 January;251 (1):35-43.
- (20) Hyman MA. Refrigerator rights--the missing link in health, disease, and obesity. *Altern Ther Health Med* 2005 July;11(4):10-12.
- (21) Cohen S, Williamson G. Perceived Stress in a Probability Sample of the United States. In: Spacapan S, Oskamp S, editors. *The Social Psychology of Health*. Newbury Park, CA: Sage, 1988.
- (22) Ware J, Jr., Kosinski M, Keller SD. A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. *Med Care* 1996 March;34(3):220-33.
- (23) Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav* 1983 December;24(4):385-96.
- (24) Bullinger M, Morfeld M, Kohlmann T, Nantke J, van den BH, Dodt B et al. SF-36 Health Survey in Rehabilitation Research. Findings from the North German Network for Rehabilitation Research, NVRF, within the rehabilitation research funding program. *Rehabilitation* 2003 August;42(4):218-25.
- (25) Burns CM, Tijhuis MA, Seidell JC. The relationship between quality of life and perceived body weight and dieting history in Dutch men and women. *Int J Obes Relat Metab Disord* 2001 September;25(9):1386-92.
- (26) Willett WC. Balancing life-style and genomics research for disease prevention. *Science* 2002 April 26;296(5568):695-8.

- (27) Blumenthal JA, Sherwood A, Babyak MA, Watkins LL, Waugh R, Georgiades A et al. Effects of exercise and stress management training on markers of cardiovascular risk in patients with ischemic heart disease: a randomized controlled trial. *JAMA* 2005 April 6;293(13):1626-34.
- (28) Stefano GB, Stefano JM, Esch T. Anticipatory stress response: A significant commonality in stress, relaxation, pleasure and love responses. *Med Sci Monit*. 2008; 14 (2): RA17-21.
- (29) Esch T, Stefano GB. A bio-psycho-socio-molecular approach to pain and stress management. *Forsch Komplementmed* 2007; 14 (4):224-34.
- (30) Esch T, Duckstein J, Welke J, Braun V. Mind/body techniques for physiological and psychological stress reduction: stress management via Tai Chi training - a pilot study. *Med Sci Monit* 2007; 13 (11): CR488-497.
- (31) Michalsen A, Grossman P, Acil A, Langhorst J, Lüdtkke R, Esch T, Stefano GB, Dobos GJ. Rapid stress reduction and anxiolysis among distressed women as a consequence of a three-month intensive yoga program. *Med Sci Monit*. 2005; 11(12): CR555-561.
- (32) Kuntz CB, Ronan GF, Ronan DW, Johnson C. Levels of obesity in women: a test of group differences in stress, self-efficacy, and problem-solving (Abstract). *Ann Behav Med*. 1994;16 (Suppl):S082.
- (33) Walcott-McQuigg JA. The relationship between stress and weight-control behavior in African-American women. *J Natl Med Assoc* 1995 June;87(6):427-32.
- (34) Weinstein SE, Shide DJ, Rolls BJ. Changes in food intake in response to stress in men and women: psychological factors. *Appetite* 1997 February;28(1):7-18.
- (35) Merrill RM, Aldana SG. Cardiovascular risk reduction and factors influencing loss to follow-up in the coronary health improvement project. *Med Sci Monit*. 2008; 14(4): PH17-25.
- (36) Rosolova H, Petrlova B, Simon J, Sifalda P, Sipova I. High-sensitivity C-reactive protein and the hypertriglyceridemic waist in patients with type 2 diabetes and metabolic syndrome. *Med Sci Monit* 2008; 14(8): CR411-5.
- (37) Sherbourne CD, Sturm R, Wells KB. What outcomes matter to patients? *J Gen Intern Med* 1999 June;14(6):357-63.
- (38) Kleinman A. On illness meanings and clinical interpretation: not 'rational man', but a rational approach to man the sufferer/man the healer. *Cult Med Psychiatry* 1981 December;5(4):373-7.
- (39) Rowland ML. Self-reported weight and height. *Am J Clin Nutr* 1990 December;52(6):1125-33.
- (40) Jefferey RW. Bias in reported body weight as a function of education, occupation, health and weight concern. *Addict Behav* 1996;21(2):217-22.

(41) Winkler J. Die Messung des sozialen Status mit Hilfe eines Index in den Gesundheitssurveys der DHP. In: Ahrens W, Bellach BM, Jöckel KH, editors. Messung soziodemographischer Merkmale in der Epidemiologie. RKI- Schriften;1/98 MMW Medizin Verlag,1998. p. 69-74.

2.2 STUDY 2: LOCUS OF CONTROL, SELF-EFFICACY AND ATTRIBUTION TENDENCIES IN OBESE PATIENTS – IMPLICATIONS FOR PRIMARY CARE CONSULTATIONS

Sonntag, U., Esch, T., von Hagen, L., Renneberg, B., Braun, V. & Heintze, C. (2010). Locus of control, self-efficacy and attribution tendencies in obese patients – implications for primary care consultations. *Medical Science Monitor*, 16(7), CR330-335.

2.2.1 SUMMARY

Background

To examine health- related locus of control, self- efficacy and attribution tendencies in obese patients and to discuss their impact on primary care consultations.

Material and Methods

123 patients, showing a BMI > 25 kg/m² and following a health Check-up 35, rated questionnaires regarding health- related locus of control, self- efficacy and attribution tendencies concerning obesity. Physical health parameters like BMI, level of cholesterol, blood pressure and existing cardiovascular co morbidities were assessed by GPs. Statistical analysis were conducted using SPSSv16.0.

Results

Patients scored comparable to a norm-population on self-efficacy and the three dimensions of health related locus of control. Physical health parameters did not explain variance. Patients named mainly behavioral causes for their overweight; those with a BMI > 30 kg/m² tend to attribute their bodyweight to genetically origins.

Conclusion

In order to conduct individual tailored consultancies it is necessary to explore the individual beliefs and attitudes of patients of concern. It is suggested that locus of control and self- efficacy are obligatory issues to discuss in preventive encounters with these patients.

GPs should be trained in techniques like motivational interviewing in order to encourage patients to take responsibility for their health and thus increase treatment outcome.

Keywords: obesity, primary care, health related locus of control, preventive counseling

2.2.2 BACKGROUND

Obesity is increasing worldwide (1); this is of concern since obesity elevates the risk for diabetes mellitus and cardiovascular diseases like hypertension and coronary heart disease. The increasing prevalence is explained primarily as a result of changes in life-style and social environment and seems to be associated with genetic and other biological factors (2). Many life-style-interventions are carried out to effectively respond the so called `epidemic phenomenon` of obesity (1).

Main methods for weight management are behavior modification, diet, increase of physical activity, bariatric surgery and drug therapy. These strategies are used separately or in combination. However, complex life-style changes are necessary to achieve long-term effect in weight management. Strategies for weight reduction should meet the individual needs and values. Patients who are taking responsibility for their weight management were found to be more successful in weight reduction which implies that taking responsibility is a key variable for successful behavioral changes (3).

Thus, an important aim of any intervention is to increase patients` responsibility for treatment outcome (4). Taking responsibility is related to concepts of locus of control, self-efficacy and attribution tendencies.

Locus of control refers to the beliefs individuals have in the amount of control over their lives according to Rotters` social learning theory (5). Rotter describes a continuum between internal and external locus of control. Individuals with high internal scores are more likely than persons with high external scores to control their environment and to take responsibility for their behavior. Person, attributing rather externally, tend to attribute goal attainment to external factors outside the control of the individual (6). Locus of control is domain-specific. Health-related locus of control was found to be a better predictor for weight change than general measurements (7). It is varying in relation to different health conditions, e.g. patients suffering from Diabetes mellitus show a high level of internal, but low level of fatalistic externality which is in line with objective controllability of complaints (8). It was shown (8) that people with high fatalistic external attributions showed less preventive behavior.

A related construct – self-efficacy – is described in Banduras social-cognitive theory (9). It is defined as the belief that one is capable of performing in a certain manner to attain

designated goals. In distinction to locus of control, self-efficacy focuses on the belief that oneself is able to handle certain challenges on their own which is more self-centred than the rather general perceived locus of control. Self-efficacy is also domain-specific. A high level of weight-related self-efficacy is related to completion of programmes of a behavioral weight reduction intervention (10), greater baseline self-efficacy tended to predict greater weight loss success in programmes (11), but not always (12).

Ogden et al (13) showed that patients tend to attribute overweight to internal uncontrollable factors, like genes and hormones. Contrary, General Practitioners (GP) focus on internal controllable causes of obesity (e.g. life-style). In conclusion, GPs frequently advice more self-discipline where as many patients ask for external help, e.g. nutrition consultancy. It is evident that communication between obese patients and their GPs can be affected by the discrepancy of patients` approach to gain professional support and doctors` victim blaming model (13). At the same time, GPs and other health care authorities are perceived as a source of support and can therefore influence patients` life-style. Loureiro and Nayga (14) reported that GPs consultations regarding overweight and obesity are positively related to an increase of eating fewer calories and being more physical active.

Since 1989 the German health system offers a primary preventive health examination (so-called Check-up 35). This instrument refers to the cardiovascular risk status covering a physical examination, assessment of several clinical parameters (e.g. blood pressure, cholesterol), a medical history and a final counseling talk concerning possible risk factors, their consequences and recommended interventions. More than 90% of the German population is public insured and patients older than 35 years are invited to join the Check-up 35, conducted by GPs in two year intervals. The participation is voluntarily, but some health insurances try to motivate patients with offering financial benefits for joining the Check-up 35. We used the Check-up 35 visit for our study, since obesity as a significant risk factor is a critical focus, of relevance for the GP and the patient concerned.

The present study focused on overweight (Body Mass Index: 25-29.9 kg/m²) and obese (BMI \geq 30 kg/m²) patients in these Check-up 35 settings and aimed at identifying crucial variables for effective counseling in primary care, in detail locus of control, self- efficacy and attribution tendencies. The paper will contribute essential information to tailor

individualized, patient-centred consultancy in terms of obesity-management. It was hypothesized that higher BMI is associated with higher externality, external attribution tendencies and lower self-efficacy.

2.2.3 MATERIAL AND METHODS

2.2.3.1 STUDY DESIGN

We conducted a cross-sectional study out of 70 GPs who were asked for participation by a written invitation letter, 16 agreed to participate in this study. They were all working in single surgeries in Berlin, which is common in Germany. Patients attending a Check-up 35 program in these surgeries were consecutively asked to participate. They were requested to complete questionnaires regarding socio- demographic information and psychological variables. No information was available about GPs and patients who refused to participate.

Eligible patients had to be 35 years and older, German-speaking, participating in a Check-up 35 program at their GP in the time frame of six months, and showing a BMI of 25 kg/m² and higher. The patients were free from depression, other serious mental disorders, advanced cancer and cognitive handicaps.

2.2.3.2 MEASUREMENTS

Health-related locus of control

The questionnaire regarding health- related locus of control (8) – KKG (Fragebogen zur Erhebung von Kontrollüberzeugungen zu Krankheit und Gesundheit) – asks individuals to indicate their level of agreement to 21 statements regarding their locus of control in existing health complaints and in prevention of potential ones on a six- point- Likert- scale. Three dimensions – internality, social externality and fatalistic externality – are assessed with seven items for each dimension. Finally, sum scores for each dimension are conducted. Values between seven and 42 are possible.

Internal locus of control describes the expectancy that incidences are under control of oneself and generally controllable. It was shown that high internality is a beneficial trait for weight-management (7).

Social externality is defined as the assumption that incidences are determined mainly by others, especially by those who seem to be more powerful. It is supposed that patients with high levels of social externality show higher attendances to follow any behavior-intervention-strategy which was suggested by the GP if the GP is perceived as powerful (7).

The third dimension of the questionnaire is fatalistic externality, which describes the expectancy that incidences are determined by destiny or coincidence. In this case, the attendance to participate actively in the coping of diseases might be relatively low since people do not see any relationship between their behavior and outcomes like health (7).

2.2.3.3 SELF-EFFICACY

The ten- item scale for assessing general perceived self-efficacy measures the optimistic belief to deal successfully with different situations and challenges and to attribute success internally (15). Patients are asked to indicate their level of agreement to statements on a four-point-Likert scale. Values between four and 40 are possible.

Attribution tendencies

Following a questionnaire of Ogden (13) we used similar items to assess patients' attribution tendencies. Patients were asked to indicate their level of agreement to statements about genetic, psychological, behavioral and social origin of elevated bodyweight. As well we assessed attitudes regarding possible support for weight management seen by patients in GP, family, partner and individual nutrition consultancy. A three-point-Likert scale, ranging from not relevant to highly relevant, was used for both questions.

2.2.3.4 BACKGROUND DATA

Several independent variables were integrated into our analysis. Physiological variables were BMI, blood pressure, level of cholesterol and history of cardiovascular diseases. BMI was calculated by self-reported weight in kilograms divided by squared height in meters. We categorized data into two groups: overweight (25-29.9 kg/m²) and obesity (≥ 30 kg/m²) according to standard guidelines (1). Blood pressure and level of cholesterol were allocated into two categories: healthy group (< 140/90 mmHg; < 200 ml/dl) vs. a group at risk (> 140/90 mmHg; > 200 ml/dl). Additionally, socio-demographical variables

were taken, in detail, age, sex and social status. The latter one was calculated according to Winkler (16) with regard to income, level of education and profession. Another item assessed if patients were currently following any diet.

2.2.3.5 DATA ANALYSIS

Three dimensions of KKG and self-efficacy were considered separately in the analyses. We calculated t-tests for determining deviations from norm populations. Pearson correlation coefficients and partial correlation coefficients were conducted to describe associations between locus of control, self-efficacy, attribution tendencies and independent variables. To test differences between groups, χ^2 -tests were used for categorical variables and analysis of variance (ANOVA) for continuous ones. Two tailed p-values less than 0.05 were considered statistically significant. We used regression analysis to quantify the influences that can be explained in the dependent variables. All statistical analyses were conducted with SPSS v16.0.

2.2.3.6 ETHICS

The study was approved by an independent ethic committee. An informed consent was obtained for publication from each participating patient and GP.

2.2.4 RESULTS

2.2.4.1 SAMPLE

123 participants out of 16 GP surgeries completed the self-report inventories, socio-demographic variables and physiological data were available. On average, each GP surgery provided data of eight patients.

Average age of overweight and obese patients seeking advice from their GP was 58.41 years (SD=9.69) with a mean BMI of 32.82 kg/m² (SD=4.83). BMI was not significantly associated with social class; neither with age nor with sex ($p>.05$). Table 2.2-1 shows additional characteristics of the sample.

Table 2.2-1: Socio-demographic and physical characteristics of the sample

Characteristics	N (%)
Sex	
female	77 (62.6)
male	46 (37.4)
Age	
35 – 50	28 (23.0)
51 – 60	41 (33.6)
≥ 61	53 (43.4)
BMI in kg/m²	
25-29.9	39 (32)
≥ 30	83 (68)
Social class	
Lower	18 (16.6)
Middle	64 (59.3)
Upper	26 (24.1)
Blood pressure in mmHG	
< 140/90	79 (76)
> 140/90	25 (24)
Cholesterol in ml/dl	
< 200	45 (42.7)
> 200	58 (56.3)
Currently following a diet	
Yes	18 (15.3)
No	92 (84.7)

2.2.4.2 HEALTH-RELATED LOCUS OF CONTROL, SELF-EFFICACY, ATTRIBUTION TENDENCIES

Health-related locus of control

Mean scores of the three dimensions of health related locus of control were comparable to a norm population of healthy patients (8). As shown in table 2.2-2, no significant difference regarding internality or social externality was found for any of the observed independent variables. Regarding fatalistic externality, sex and age-related differences were carried out. Female and older people scored higher on this dimension. A stepwise-

regression analysis for fatalistic externality suggested to include these two factors into the model ($R^2 = .121$, $p = .002$).

Self- efficacy

Mean score in our sample was 28.98 (SD=5.41), which is comparable to a norm-population (M=29.45, SD=5.33) (14). As shown in table 2.2-2, the only difference in this dimension was found between patients currently following any diet and those who are not keeping a diet at the moment.

Table 2.2-2: Locus of control and self-efficacy in overweight and obese patients

		Internality		Social externality		Fatalistic externality		Self-efficacy	
		Mean (SD)	p	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
sex	Female	27.43 (5.29)	>.05	24.24 (6.78)	>.05	20.65 (8.07)	.021	28.37 (5.93)	>.05
	Male	27.48 (4.43)		23.34 (4.63)		17.43 (5.27)		29.95 (4.34)	
age	35-50	28.62 (4.07)	>.05	25.84 (5.68)	>.05	17.88 (5.95)	<.001	28.92 (5.18)	>.05
	51-60	26.78 (5.32)		22.45 (4.85)		16.78 (6.93)		28.95 (6.50)	
	≥61	27.33 (5.07)		24.0 (6.76)		22.14 (7.27)		29.04 (4.67)	
BMI	<30	26.79 (4.55)	>.05	22.68 (5.86)	>.05	17.67 (6.0)	>.05	28.97 (4.89)	>.05
	>30	27.72 (5.11)		24.41 (6.04)		20.10 (7.63)		28.99 (5.64)	
social class	Lower	26.47 (5.71)	>.05	22.65 (5.62)	>.05	20.47 (8.10)	>.05	29.39 (7.55)	>.05
	Middle	27.21 (5.25)		23.65 (6.32)		19.56 (7.65)		28.22 (4.95)	
	Upper	28.20 (4.44)		23.67 (4.98)		17.52 (6.13)		30.48 (4.45)	
Blood pressure in mmHG	<140/90	27.55 (4.55)	>.05	23.85 (5.23)	>.05	18.62 (6.42)	>.05	28.74 (5.69)	>.05
	>140/90	27.22 (4.50)		22.23 (4.90)		20.61 (7.94)		29.65 (5.0)	
Level of cholesterol in ml/dl	<200	28.19 (4.51)	>.05	23.57 (5.25)	>.05	17.77 (6.32)	>.05	29.56 (5.77)	>.05
	>200	26.70 (4.35)		22.92 (4.77)		20.06 (7.18)		28.89 (5.25)	
Current diet status	Yes	27.11 (4.50)	>.05	23.78 (5.8)	>.05	18.50 (6.51)	>.05	31.62 (4.43)	.03
	No	27.42 (4.60)		23.63 (5.55)		19.2 (6.8)		28.49 (5.52)	

Significant results are in boldface

Attribution tendencies

Most frequently, patients named behavioral causes for their obesity (M=2.16 (SD=.83)), followed by genetic (M=1.96 (SD=.77)), psychological (M=1.77 (SD=.83)) and social (M=1.56 (SD=.71)) causes. Patients with a BMI above 30 kg/m² were significantly more likely to blame their genes for their elevated bodyweight ($p = .025$). Correlation analysis

figured out that age is negatively associated with perceived psychological ($r=-.382$, $p<.001$), social ($r=-.279$, $p=.002$) and behavioral ($r=-.312$, $p=.001$) origins of obesity.

Main sources of support for weight- management were seen in nutrition consultancy (M=2.54 (SD=.59)) and GPs (M=2.51 (SD=.56)). Partners (M=2.36, SD=.75)) and family (M=2.33 (SD=.71) were also seen as important resources for successful weight management. Not significant, but still a trend indicated that the higher the BMI is the more likely patients are to rate their GP ($p=.09$) as important to solve the problem.

2.2.5 DISCUSSION

Aim of the study was to investigate overweight and obese patients` health related locus of control, self-efficacy and attribution tendencies regarding causes and solutions of obesity in order to identify psychosocial issues which have to be considered when counseling overweight patients.

Patients in our sample showed scores for all three dimensions of the questionnaire assessing health-related locus of control that were comparable to a norm-population of healthy patients. For fatalistic externality differences between groups were found: women and older patients scored higher on this dimension compared to their male and younger counterparts. Additionally, older patients indicated only a weak relation between psychological, social and behavioral causes and their overweight which is in line with a high level of fatalistic externality. These patients attribute their health to destiny and other uncontrollable external factors and are therefore not likely to follow weight management instructions. Main challenge in consulting these patients is to motivate them to take responsibility for their health before implementing a special obesity-therapy.

Especially, a high level of internality predicts health behavior (8).Our data suggest that overweight and obese primary care patients show a normal level regarding this resource. Therefore, a main focus in encounters should be the empowerment of patients and an increase of internal locus of control in order to motivate them to manage their weight using their own resources and possibilities. Patients need to take responsibility for their health (4). A relevant technique for increasing internality is motivational interviewing (17,18). This client-centred approach triggers internal motivation and effects weight

management positively (19). GPs should focus on false beliefs of patients, e.g. the assumption that their health- status is invariant and not related to their behavior and life-style. Additionally, restrictions in quality of life and an increased level of perceived stress (20) underline the need for advanced communications skills of health providers dealing with these clients.

Patients with a higher BMI also scored slightly higher regarding social externality and might therefore be of particular interest for primary care consultancy. Trust and belief in a certain therapy and the person delivering this intervention, i.e., the GP, is an important factor for compliance, adherence and in conclusion for success of a medical strategy (21). Therefore, GPs should intensify consultation about health behavior especially with these patients since it is more likely that they will follow suggestions. Schmitt et al (22) found a significant association between compliance and high levels of social externality. Obese patients have to be encouraged to seek help from different health experts. GPs can coordinate different professions working together in terms of obesity management. Nevertheless, all these `powerful others` should concentrate on increasing patients' internality and encouraging them to take responsibility for their health.

The current diet status was the only variable significantly associated with self-efficacy. It remains unclear, if patients currently following a diet showed per se a higher level of self-efficacy or if self-efficacy is higher since they already work on their health status. However, studies showed that changes in self-efficacy during treatment are associated with weight loss (23) and it is therefore one aspect to consider in consultations.

In line with Ogdens' findings in normal-weight sample (13) patients tend to name mainly behavioral aspects as being responsible for their bodyweight. Our data showed that genetic attributions are more likely in patients with an elevated BMI. That means that especially these patients at high risk blame uncontrollable factors for their bodyweight, which is a challenge for health care providers to motivate patients to reconsider causes and focus on controllable ones. Additionally, it was shown that GPs play an important role for persons of concern, especially for those with a higher BMI. That enables GPs to influence patients' health behavior and to appeal to patients' life-style. Furthermore, primary health care providers have to be aware of age-related differences. Older patients

tend to deny any relation between their bodyweight and psychological, social and behavioral causes.

Recently, the importance of a good match between treatment and individual needs for weight control is emphasized (24). It is self-evident, that many treatments will be useful for some subjects, but none will be effective for all. Several studies showed success in weight management for subgroups of patients treated with an appropriate therapy (23, 25 – 27). And it was shown that an intensive pre-treatment testing protocol which is used to match participants to a special treatment is obviously associated with higher success rates regarding weight loss (28).

GPs` challenge in obesity-care is to identify individual strengths and weaknesses of patients in order to find the appropriate treatment.

There are some limitations to our study that need to be considered. First, explanatory power and generalisability of our results is reduced due to the relatively small sample size. We might have an over-reporting of motivated GPs and engaged patients which may be another explanation for average scores of dependent variables. Aside from that, it was found that the actual BMI is even higher than self-reported data indicate (29). Especially women tend to overestimate their height and underestimate their weight. Since two third of our sample were female, gender has to be regarded as an influence in our study. Because the results reported here are based on cross-sectional data, no inferences of causality for relations reported between dependent (health-related locus of control, self-efficacy, and attribution tendencies) and independent variables (e.g. BMI, age) can be drawn.

2.2.5.1 CONCLUSION

Our data deliver essential directions for primary care consultations. Obesity as a modifiable risk factor is a major health problem and health care providers are asked to support patients in complex changes of their life-style and behavior. Main foci in consultations should be the increase of internality, the encouragement of patients to take responsibility for themselves and the identification of an appropriate therapeutic strategy. GPs should elicited individual understandings and attribution related to health (30). As continuous accompanists of patients they are asked to realise a good matching between patients` individual needs and specific treatment factors (31).

2.2.5.2 PRACTICAL IMPLICATIONS

Psychological factors are determinants of patients' compliance and success in weight-management. It is suggested that aspects like locus of control and self-efficacy should be a main focus in preventive care encounters with overweight and obese patients. GPs, practice nurses and other counselors should be trained in using techniques like motivational interviewing (18) to encourage patients to take responsibility for their health and thus increase treatment outcome. GPs are only one part in a complex obesity-treatment, but especially they can coordinate a good fit of individual needs and a suitable treatment. Further research should concentrate on individual differentiation of consultations for various patient parameters.

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REFERENCES

- (1) World Health Organization. Obesity. Preventing and managing the global epidemic. Report of a WHO consultation on obesity. WHO/NUT/NCD/981, WHO, Geneva. 1998
- (2) Lewis CE, Jacobs DR Jr, McCreath H, Kiefe CI, Schreiner PJ, Smith DE, Williams OD. Weight gain continues in the 1990s: 10-year trends in weight and overweight from the Coronary Artery Risk Development in Young Adults (CARDIA) study. *Am. J. Epidemiol.* 151 (2000), pp. 1172–1181.
- (3) Tobias LL & MacDonald ML. Internal locus of control and weight loss: an insufficient condition. *J. Consult. Clin Psychol* 45 (1977), pp. 647–653
- (4) Adolfsson B, Andersson I, Elofsson S, Rössner S & Undén AL. Locus of control and weight reduction. *Pat Edu Couns* 56 (2005), 55-61
- (5) Rotter B. Generalised expectancies for internal and external control of reinforcement. *Psychol. Monogr. Gen. Appl.* 80 (1966), pp. 1–28
- (6) Norman P, Bennet P. Health locus of control. In: Conner M, Norman P, editors. *Predicting health behavior*. Buckingham, Ph: Open University Press, 1996. p. 62–94
- (7) Allison DB, Engel CN. Predicting treatment outcome: why have we been so unsuccessful? In: Allison DA, Pi-Sunyer FX (eds). *Obesity treatment: Establishing goals, improving outcomes, and reviewing the research agenda*. Plenum Press. New York, 1995, pp.191-198
- (8) Lohaus A. & Schmitt GM. Fragebogen zur Erhebung von Kontrollüberzeugungen zu Krankheit und Gesundheit (KKG). Handanweisung. Göttingen: Hogrefe, 1989
- (9) Bandura, A. *Social Learning Theory*. New York: General Learning Press, 1977
- (10) Cargill BR, Clark MM, Pera V, Niaura RS, Abrams DB. Binge eating, body image, depression, and self-efficacy in an obese clinical population. *Obes Res* 1999 Jul;7(4):379-86.
- (11) Prochaska JO, Norcross JC, Fowler JL, Follick MJ & Abrams DB. Attendance and outcome in a work site weight control program: Processes and stages of change as process and predictor variables. *Addict Behav* 1992; 17:35-45
- (12) Stotland S, Zuroff DC & Roy M. Situational dieting self-efficacy and short-term regulation of eating. *Appetite*, 1991, 17, 81-90
- (13) Ogden J, Bandara I, Cohen H, Farmer D, Hardie J, Minas H, Moore J, Qureshi S, Walter F, Whitehead MA: General practitioners' and patients' models of obesity: whose problem is it? *Patient Educ Couns* 2001;44: 227-6.
- (14) Loureiro ML, Nayga RM. Obesity, weight loss, and physician's advice. *Soc Sci Med*, 2006 May;62(10):2458-68

- (15) Jerusalem M. & Schwarzer R. Skala zur Allgemeinen Selbstwirksamkeitserwartung. In E. Brähler, J. Schumacher & B. Strauß (editors), Diagnostische Verfahren in der Psychotherapie, Göttingen: Hogrefe, 2001
- (16) Winkler J. Die Messung des sozialen Status mit Hilfe eines Index in den Gesundheitssurveys der DHP. In: Ahrens W, Bellach BM, Jöckel KH, editors. Messung soziodemographischer Merkmale in der Epidemiologie. RKI- Schriften;1/98 MMW Medizin Verlag,1998. p. 69-74.
- (17) Rogers C. The necessary and sufficient conditions for therapeutic personality change. JCCP, 1957, 21, 95–103.
- (18) Rollnick S, & Miller WR. What is motivational interviewing? BCP, 1995, 23, 325–334
- (19) Baker A, Richmond R, Castle D, Kulkarni J, Kay- Lambkin F, Skrouge R, Filia S, Lewin TJ. Coronary artery disease risk reduction intervention among overweight smokers with a psychotic disorder: pilot trial. Aust N Z J Psychiatry. 2009 Feb;43(2):129-35
- (20) Metz U, Welke J, Esch T, Renneberg B, Braun V, Heintze C: Perception of stress and quality of life in overweight and obese people – Implications for preventive consultancies in primary care. Med Sci Monit 2009; 15(1), p.1-6
- (21) Esch T, Guarna M, Bianchi E, Zhu W, Stefano GB. Commonalities in the central nervous system's involvement with complementary medical therapies: limbic morphinergic processes. Med Sci Monit 2004;10(6):MS6-17
- (22) Schmitt GM, Lohaus A & Salewski C. Kontrollüberzeugungen und Patienten-Compliance: Eine empirische Untersuchung am Beispiel von Jugendlichen mit Diabetes mellitus, Asthma bronchiale und Alopecia areata. Psychotherapie und Psychologie, 1989. 39: 33-40
- (23) Dennis KE, Goldberg AP. Weight control self- efficacy types and transitions affect weight- loss outcomes in obese women. Addict Behav 1996, 21: 103-1
- (24) Teixeira PJ, Going SB, Sardinha LB, Lohman TG. A review of psychosocial pre-treatment predictors of weight control. Obes Rev. 2005 Feb;6(1):43-65.
- (25) Clark MM; Guise BJ, Niaura RS. Obesity level and attrition: support for patient-treatment matching in obesity treatment. Obes Res 1995; 3: 63-54.
- (26) Kiernan M, King AC, Kraemer HC, Stefanick ML, Killen JD. Characteristics of successful and unsuccessful dieters: an application of signal detection methodology. Ann Behav Med 1998; 20:1-6.
- (27) Wadden TA, Sarwer DB. Behavioral treatment of obesity: new approaches to an old disorder. In: Goldstein DJ (ed). The Management of Eating Disorders and Obesity. Humana Press Inc.: Totowa, NJ, 1999, pp.173-199

- (28) Beliard D, Kirschenbaum DS, Fitzgibbon ML. Evaluation of an intensive weight control program using a priori criteria to determine outcome. *Int J Obes Relat Metab Disord* 1992; 16; 505-517
- (29) Rowland ML. Self-reported weight and height. *Am J Clin Nutr* 1990 December;52(6):1125-33.
- (30) Heintze C, Metz U, Hahn D, Niewöhner J, Schwantes U, Wiesner J, Braun V. Counseling overweight in primary care: An analysis of patient- physician encounters. *Pat Edu Couns*, 2009 (in press)
- (31) Brownell KD & Wadden TA. Etiology and treatment of obesity. Understanding a serious, prevalent and refractory disorder. *J Consult Clin Psychol* 1992;60:505-517

2.3 STUDY 3: COUNSELING OVERWEIGHT PATIENTS: ANALYSIS OF PREVENTIVE ENCOUNTERS IN PRIMARY CARE

Sonntag, U., Henkel, J., Renneberg, B., Bockelbrink, A., Braun, V. & Heintze, C. (2010). Counseling overweight patients: Analysis of preventive encounters in primary care. *International Journal for Quality in Health Care*, pp. 1–7, doi: [10.1093/intqhc/mzq060](https://doi.org/10.1093/intqhc/mzq060).

2.3.1 ABSTRACT

Objective

The increasing prevalence of obesity requires particularly primary care providers to take action. The aim of this study was to analyze GPs encounters with overweight and obese patients in primary care to test the hypothesis that patients with a BMI $\geq 30\text{kg/m}^2$ would have longer consultations focusing on lifestyle-related issues like nutrition and physical activity than those with a BMI $< 30\text{kg/m}^2$.

Design

Cross sectional comparison of audiotaped encounters of patients with a BMI $\geq 30\text{kg/m}^2$ and those with a BMI $< 30\text{kg/m}^2$.

Setting

Twelve general practitioner surgeries in Berlin/ Germany.

Participants

Fifty patients who agreed to have preventive Check-up 35 encounters audiotaped.

Main Outcome Measures

Based on the Roter Interaction Analysis System (RIAS) coding scheme we assessed duration of encounter and the prevalence of GP statements regarding cardiovascular risks, nutrition and physical activity.

Results

An increased BMI was found to be a predictor for the length of encounters ($p=0.01$), whereas the content of talks was mainly determined by the individual of GP and sex of the GP. Statements regarding cardiovascular risks were most frequent, followed by those regarding nutrition and physical activity. In this study the assessed physiological

parameters were not associated with the specific contents of preventive encounters like nutrition or physical activity ($p>0.05$).

Conclusions

Our results indicate that GPs rarely use the Check-up 35 program to conduct lifestyle consultations with obese patients. Barriers to lifestyle counseling and possible solutions are discussed with a view to promoting individualized and target management of overweight patients.

Keywords: cardiovascular risk, counseling, guideline adherence

2.3.2 INTRODUCTION

Obesity is increasing worldwide (1); in Germany less than half of female and only one third of male population shows a normal body weight, 20% of German population is classified as obese (2). This is of concern since obesity elevates the risk for cardiovascular diseases like hypertension, coronary heart disease and diabetes mellitus. The WHO (1) called obesity an epidemic phenomenon which demands long-term care to support lifestyle changes. Particularly general practitioners (GP) have an early opportunity for motivating high-risk patients to follow weight reduction programs before associated diseases become manifest. Overweight patients tend to see their GP more frequently than others (3), which enables GPs to provide continuous care. A good patient-physician relationship and particularly the communication skills of GPs are important factors for patient adherence as well as for the ultimate success of a medical strategy (4). The coordinating function of GPs in the long-term management of obesity is emphasized (5). In particular, GPs are responsible for counseling overweight and obese patients and preventing associated diseases.

Several barriers to lifestyle counseling in primary care have been identified. They include lack of self-efficacy, lack of time, and negative attitudes towards obese people (6-8). Physicians also blame inadequate financial rewards for the failure of obesity treatment (9).

However, guidelines (5,10) for therapy of obesity agree on the following points: patients with a BMI above 30 kg/m² and those with a BMI of 25 kg/m² - 30 kg/m² accompanied by other cardiovascular risks, co-morbidities or psychosocial strain should be assisted in

terms of nutrition counseling, physical activity and behavioral training. Studies have reported positive health effects of brief nutrition and physical activity counseling by GPs (11-13). Successful long-term weight loss maintenance requires continuity of care and intensive follow-up after interventions (14).

Kushner et al (6) showed that the majority of GPs regarded nutrition consultation as their responsibility. But lifestyle change counseling in general is not always performed in primary care. Eaton et al (15) reported that only 33% of obese patients in their sample received nutrition counseling. Advice on diet and physical activity is more likely in patients with a high BMI (16,17). Wadden et al (18) reported that obese patients had high confidence in the general care delivered by GPs, but 75% stated that their GP did not help them at all with weight management.

Recent research has emphasized gender-related differences in physicians' counseling habits. It was shown, for example, that female GPs offered more preventive services (19). Different communication patterns of female and male GPs were investigated (20), and the more affective and emotional style of female physicians seems to fit the needs of overweight and obese patients better than counseling by male GPs.

Since GPs play a crucial role in the long-term care of overweight and obese patients, their counseling in preventive encounters is of particular importance. To our knowledge, previous studies on this topic were mainly based on patient and GP self-reported data, whereas the present study used objective data such as audiotaped consultations which diminishes biases due to social desirability and increases validity, reliability and objectivity of study results.

We hypothesized that patients with a BMI $> 30\text{kg/m}^2$ and/or cardiovascular diseases had longer encounters than those with a BMI $\leq 30\text{ kg/m}^2$. We also hypothesized that statements regarding cardiovascular risks, nutrition and physical activity were made more frequently during encounters with these patients than during talks with those who had a BMI $\leq 30\text{ kg/m}^2$ and no cardiovascular risk other than overweight.

2.3.3 METHODS

We conducted a cross-sectional study with primary care physicians working in solo practices. GPs were recruited by the Local Board of Health in Berlin. 70 GPs were asked to participate, and 12 accepted. No information was available on GPs who refused to participate. GPs audiotaped their final routine therapy consultation with overweight patients ($\text{BMI} \geq 25 \text{ kg/m}^2$) participating in a regular preventive Check-up 35 program. The Check-up 35 is a primary preventive health examination offered by GPs at two-year intervals to all persons in Germany who are over 35 and have public health insurance. This instrument is designed to assess the cardiovascular risk status and comprises a physical examination, determination of several clinical parameters such as blood pressure and cholesterol, a medical history, and a summary consultation on risk factors, their consequences and possible interventions. There are neither guidelines nor specific instructions to assist GPs in how to conduct such a summary encounter. Eligible patients were 35 or older, spoke German and had come to their GP for a biennial Check-up 35. Exclusion criteria were depression, other serious mental disorders, severe cancer and cognitive handicaps. Participants completed a questionnaire designed to collect personal and demographic information. Three patients were excluded because they had a $\text{BMI} > 40 \text{ kg/m}^2$ and probably received supportive treatment from other health care professionals. The 50 remaining encounters were assessed in this study. Informed consent for publication was obtained from all participants and GPs. The study was approved by an independent ethics committee.

Audiotaped sessions were analyzed for communicative behavior in medical encounters using the Roter interaction analysis system (RIAS) (21). The unit of analysis is the smallest meaningful string of words. All statements were assigned to mutually exclusive categories. The original system contains 16 categories, seven for affective and nine for instrumental behavior. For this study, we modified categories of instrumental behavior to fit relevant issues of Check-up 35 settings (Table 2.3-1). Modification of RIAS to suit the specific study needs is suggested by the authors (21).

Table 2.3-1: Adapted version of RIAS coding scheme for instrumental behavior

Code
Cardiovascular risks/ Nutrition/ Physical activity/ others
Questions
Biomedical/ therapeutic
Lifestyle/ social context
Psychosocial/ emotions
Giving information
Biomedical/ therapeutic
Life style/ social context
Psychosocial/ emotions
Counseling
Biomedical/ therapeutic
Lifestyle/ social context
Psychosocial/ emotions

Main foci in dialogues with overweight patients are cardiovascular risks (including overweight), nutrition counseling and physical activity. Each statement was coded into instrumental (asking questions, giving information, and counseling) or affective behavior and subdivided into a biomedical, psychosocial or lifestyle-related category. Each statement was assigned one exclusive code. The present study focused on instrumental behavior.

2.3.3.1 ANALYSES

To create comparable encounters regardless of their differing lengths, we calculated means per minute for relevant variables. The BMI was based on patients' self-reported height and weight. After examining descriptive statistics and bivariate associations, we used ANOVAS and multiple linear regression analysis to determine the association between variables. The duration of the encounter and the frequency of GPs' statements regarding cardiovascular risks, nutrition and physical activity served as dependent variables. The latter three were rated by RIAS. Ten percent of the dialogues were coded independently by two trained raters, and interrater reliability was 95%. Differences in coding were discussed until a consensus was reached. Independent variables were six

patient characteristics - gender, BMI, age, blood pressure, cholesterol level, and social class index (22) - and two GP variables: GP code and gender. All analyses were conducted using SPSS 16.0.

2.3.4 RESULTS

2.3.4.1 SAMPLE CHARACTERISTICS

Fifty audiotaped consultations were delivered by eight female and four male GPs with a mean age of 51 years. All GPs had a normal body weight with a mean BMI of 22.57 kg/m². The majority worked in single practices and provided an average of four consultation talks for this analysis. Thirty-one encounters (62%) were performed with female patients, mean age of patients was 58.6 years and mean BMI 31.45 kg/m². Sixteen patients showed a BMI between 25 and 30 kg/m². Patients had been consulting their GP for an average of 6.4 years. At least one cardiovascular diagnosis was recorded in 64% of the patients, normal blood pressure (< 140/90 mmHg) in 67%, and a normal cholesterol level (\leq 200ml/dl) in 42.6%. An elevated blood pressure was detected in 35% of patients with a BMI > 30kg/m² respectively 29% of patients with a BMI between 25 and 30 kg/m². 57% of patients in both BMI groups showed an elevated level of cholesterol (> 200ml/dl). Differences in pre-existing cardiovascular conditions related to patient's gender were only found for blood pressure: 16% of male patients vs. 44% of female ones showed an elevated blood pressure ($p=.042$). Patient characteristics did not differ among GP practices.

Table 2.3-2 shows means, SDs and ANOVA results for the length of talks as well as for statements regarding cardiovascular risks and nutrition. An encounter lasted 8:27 minutes on the average, varying between 1:45 and 32:54 min. Encounters with female patients and patients of both gender with a BMI \geq 30kg/m² lasted about twice as long as the ones with male patients and patients with a BMI < 30kg/m².

Table 2.3-2: ANOVAs for length of talks and GPs' statements regarding cardiovascular risks and nutrition

		Length of talks (in min)		Statements regarding cardiovascular risks (per min)		Statements regarding nutrition (per min)	
		Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Average		8:27 (6:30)		2.9 (1.7)		1.4 (1.6)	
Patient Variables	Gender	Female	10:02 (7:22)	0.027	2.6 (1.4)	>0.05	1.5 (1.6)
		Male	5:53 (3:40)		3.4 (1.9)		1.4 (1.5)
	BMI	< 30kg/m²	5:03 (2:13)	0.01	3.1 (2.0)	>0.05	1.5 (1.9)
		≥ 30kg/m²	10:03 (7:13)		2.8 (1.5)		1.4 (1.4)
GP variables	Person		<0.001		0.016		<0.001
	Gender	Female	10:05 (6:56)	0.005	2.4 (0.9)	0.001	1.9 (1.6)
Male		4:39 (2:59)	4.1 (2.4)		0.3 (0.4)		

Significant results are in boldface

Statements regarding cardiovascular risks were most frequent and could be found in all encounters. Utterances related to cardiovascular risks were often associated with further information about laboratory tests: „But still, your blood pressure...170/100 is way more than we want to have. And the level of blood glucose causes a bit concern. Your level of cholesterol is fantastic, 180, this stayed at the same level. But the sugar is increasing. It was 111 and is now 124...” (GP1).

The frequency of statements varied between 0.64 and 9.91 per minute. In consultations of male physicians with male patients significantly more cardiovascular utterances compared to other gender-dyads (combination of patient's and GP's gender) were found (M=4.88, p=0.003). In talks between two women in average 2.3 cardiovascular statements per minute regarding this topic were addressed. The individual and gender of GPs were significantly related to the frequency of addressing cardiovascular risks (Table 2.3-2). Statements about nutrition were identified in 78% of the dialogues, their frequency varying between 0 and 6.76 per minute.

Stepwise regression analysis involving patient characteristics adjusted for the person of the GP identified the patient's gender as a predictor for the length of talks (Table 2.3-3).

Table 2.3-3: Stepwise regression analysis involving patient variables adjusted for the person of the GP

		Length of talks			Statements regarding cardiovascular risks			Statements regarding nutrition		
		B	p	R ²	B	p	R ²	B	p	R ²
Patient characteristics	Gender	-5.3	0.01	.154	0.25	0.09	.157	0.06	0.67	.244
	BMI	0.25	0.10		-0.09	0.54		0.16	0.25	
	Age	0.01	0.97		0.03	0.84		0.02	0.91	
	Blood pressure	-0.12	0.45		-0.12	0.42		0.00	1	
	Level of cholesterol	-0.10	0.54		0.02	0.88		-0.02	0.92	
	Social status	-0.27	0.07		0.25	0.09		-0.58	0.57	
Person of GP	-0.1	0.41	0.15	0.01	-0.17	0.00				

Assessed variables are in boldface

Regression analysis involving GP characteristics identified the code and gender of GPs as predictors for the length of talks ($R^2 = .241$). In particular, talks between a female patient and a female physician lasted significantly longer (Mean=11.69min, $p=0.004$) than other consultations. Talks between two men had a mean duration of 2.94 min. Stepwise regression analysis adjusted for the person of the GP identified none of the patient variables as predictors for the frequency of addressing either cardiovascular risks or nutrition. Stepwise regression analysis involving the gender and code of the GP identified only the latter as a significant predictor for the frequency of addressing nutrition ($R=.273$). Thus, how often nutrition was mentioned at the Check-up 35s depended mainly on the GP. But, gender- related differences were found when analyzing dyads: In talks between two women significantly ($p=0.04$) more utterances per minute regarding nutrition ($M=.35$) were identified compared to consultations between two men ($M=0.01$). Female physicians address nutrition in same intensity to male patients.

Physical activity was brought up in 70% of encounters with overweight and obese patients. The frequency of statements per minute was 0.4 on the average and varied between 0 and 2.7. None of the GP or patient variables were significantly related to this dependent variable. But differences regarding gender- dyads were carried out: female physicians addressed in average 0.78 utterances per minute regarding physical activity to male patients, where as they address only 0.36 to their female patients ($p=0.04$).

Between two men only 0.10 statements per minute regarding this issue were identified which differs significantly from all other dyads ($p=0.02$).

None of the assessed physiological variables (e.g., cholesterol level, blood pressure) were related to any of the RIAS variables.

2.3.5 DISCUSSION

The aim of the study was to gain a detailed insight into the contents of preventive talks with overweight and obese patients in daily GP practice. It was hypothesized that physiological variables like the BMI, blood pressure and cholesterol level are related to the length and content of encounters. The mean encounter length of eight minutes recorded here coincided with findings reported in the literature (23). In line with other studies (24-26), our data showed that encounters are longer with female GPs and in female dyads. Moreover, encounters in our sample are significantly longer with female and obese patients, which substantiate research indicating that female benefit more from preventive consultations than male patients (16).

Our hypothesis that an elevated BMI is associated with longer consultations has been confirmed. Deveugele et al. reported that the length of talks depended on physicians' perceptions of psychosocial problems (27, 28). GPs may pay more attention to an elevated BMI as a self-evident criterion.

Statements regarding cardiovascular risks were most frequent, probably due to the nature of an encounter regarding cardiovascular prevention. Moreover, male GPs were found to talk about cardiovascular risks more than their female counterparts, which is in contrast to studies reporting that more preventive services are offered by female than by male physicians (19,20). However, especially the biomedical topics like laboratory results that comprise a major part of Check-up 35 dialogues are rather rational issues and may therefore be a typical domain of male GP counseling activity. This is supported by our finding that in male dyads compared to female ones significantly more cardiovascular-related statements are addressed. Surprisingly, patient's sex was not related to the frequency of addressing cardiovascular risks, even if significantly more women in our sample suffered from hypertension.

Nutrition counseling was less frequently addressed by GPs. Striking laboratory results or an elevated BMI did not determine whether GPs conducted a more intensive talk about diet behavior. However, GPs differ a lot in how intensively they talk about this issue. Moreover, female GPs tend to do significantly more counseling about nutrition behavior. Talking about cardiovascular risks was identified as a 'male domain', while nutrition counseling seems to be a 'female' area. This effect is even stronger when comparing female and male patient-doctor-dyads. Lurie et al (29) reported that female GPs were more focused on preventive services and attached more value to them. Female GPs communicate about partnership building, encourage questions from patients, and are more likely to talk about psychosocial problems (24). This special communicative pattern may facilitate delivery of preventive services, particularly in conjunction with difficult lifestyle counseling. Preventive services and the related communication regarding lifestyle counseling may change due to the increasing number of female medical students.

On the whole, the talks rarely addressed physical activity, which indicates that GPs are not active in motivating their patients to increase their physical activity. Female physicians seem again to be more active in counseling this aspect of life-style, especially when talking to male patients.

In summary, present analyses suggest that GPs are not very active in lifestyle-related counseling of obese patients. One explanation can be seen in physicians' perception of heavier patients as being less likely to comply with medical advice and benefiting less from counseling (30). Considering patient's perspective, research suggests that the level of BMI is associated with an increase in patient's trust in GP's problem solving competencies (31).

Another explanation for low rates of counseling activities is delivered by Befort et al: physicians tend to underestimate patients' motivation regarding weight management (32). Furthermore, GPs and patients differ in their attributions regarding the causes, consequences and control of obesity (33,34), which constitutes another barrier to consultations. Additionally, some GPs may not bring up weight issues for fear of negative patient reactions or for lack of confidence in their communication skills (6-9).

Several studies have shown that GPs have limited knowledge about nutrition and physical activity in the management of obesity and that they have difficulty in effectively

communicating these issues (35,36). These studies concluded that clinical guidelines and supplementary training are needed. Potential for improving the obesity management skills of GPs may be assumed. Kushner (6) suggests that continuous obesity care could best be conducted by a multidisciplinary team of health care providers. Primary health care in Germany has been in a state of flux, and physicians have been delegating tasks to other health professionals, e.g. trained nurses. According to Zuzelo et al, nurses show more positive attitudes towards obese patients and are more concerned about respectful care (37), whereas many studies have reported negative attitudes of physicians towards obese patients (7,8,38-40).

Check-up 35 is an additional funded consultation program that allows GPs to provide counseling to high cardiovascular risk patients. It is remarkable how widely consultations vary among GPs for this patient sample. However, qualitative analysis of these encounters showed that a number of GPs use the Check-up 35 program for individual weight counseling tailored to the patients' individual life circumstances and narratives (41).

Guidelines for obesity treatment are only partly implemented by GPs in Check-up 35 encounters. Objective health parameters like the BMI or existing cardiovascular diseases do not influence GPs counseling style, whereas the personality of the GP is a main determinant of the content of Check-up 35 encounters. This individuality is a chance for the counseling process but can easily turn into a barrier if lifestyle counseling is rarely performed.

Our study results are limited by the small sample size and a lack of sufficient variance in several variables. Patients' BMI was assessed using self-reported data on weight and height, and overweight persons tend to underreport their weight (42). GP participation in this study was voluntary, and it is likely that those who took part were especially interested in improving their communication skills. It remains unclear how many patients received weight loss counseling prior to the encounters analyzed here.

Major strengths of our study are the objective data provided by GPs and the use of a standardized and well-validated assessment instrument.

2.3.5.1 CONCLUSION

Our analysis shows that encounters differ widely among GPs and that lifestyle counseling is rarely performed. Our hypotheses is only partly confirmed: Only an increased BMI is a predictor for the length of talks, but not for the frequency of addressing specific topics related to overweight like nutrition and physical activity. Other cardiovascular conditions do not determine the length and content of encounters. Guidelines assisting GPs in how to conduct a structured consultation in terms of life-style change need to be implemented. Consultations must be adapted to patients' mental and physical health (43), and still GPs should be free to conduct 'their' kind of encounter. On the other hand, they should be supported in coping with difficulties involved in lifestyle counseling. They could, for example, receive training in the use of special communication techniques. Prevention in primary care should focus on the development of individualized and targeted treatment. Further research is needed to identify the strengths and weaknesses of preventive encounters and to determine what extra training is required for GPs and other health care providers. Summing up, it can be stated that the long-term continuing care provided by GPs is an inadequately exploited potential in obesity treatment.

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REFERENCES

- (1) World Health Organization. Obesity: preventing and managing the global epidemic. WHO/NUT/98.1. Geneva, Switzerland: World Health Organization, 1998
- (2) Mensink GBM, Lampert T, Bergmann E (2005): Übergewicht und Adipositas in Deutschland 1984 - 2003. Bundesgesundheitsblatt 48:1348-1356
- (3) Bergmann E, Kalcklösch M, Tiemann F. Inanspruchnahme des Gesundheitswesens. Bundesgesundheitsbl - Gesundheitsforsch - Gesundheitsschutz 2005;48:1365-1373
- (4) Roter DL, Hall JA, Merisca R, Nordstrom B, Cretin D, Svarstad B. Effectiveness of interventions to improve patient compliance: meta-analysis. Med Care 1998;36:1138-61.
- (5) Deutsche Adipositasgesellschaft. Online: <http://www.adipositas-gesellschaft.de/daten/Adipositas-Leitlinie-2007.pdf> (August 14, 2009)
- (6) Kushner RF: Barriers to providing to nutrition counseling by physicians. Prev Med 1995;24(6):546-52.
- (7) Foster GD, Wadden TA, Makris AP et al Primary care physicians' attitudes about obesity and its treatment. Obes Res 2003;11:1168-1177.
- (8) Thuan J-F, Avignon A. Obesity management: attitudes and practices of French general practitioners in a region of France. Int J Obes 2005;29:1100-1106
- (9) Bocquier A, Verger P, Basdevant A et al. Overweight and obesity: knowledge, attitudes, and practices of general practitioners in France. Obes Res 2005;13:787-795.
- (10) Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults, September 1998, NIH- National Institutes of health, U.S. Preventive Services Task Force;2003
- (11) Delichatsios HK, Hunt MK, Lobb R, Emmons K, Gillmann MW. Eatsmart: efficacy of a multifaceted prevention nutrition intervention in clinical practice. Prev Med 2001;33:91-8
- (12) Hunt MK, Lobb R, Delichatsios HK, Stone C, Emmons K, Gillmann MW. Process evaluation of a clinical preventive nutrition intervention. Prev Med 2001;33:82-90
- (13) Steptoe A, Kerry S, Rink E, Hilton S. The Impact of Behavioral Counseling in Stage of Change in Fat Intake, Physical Activity, and Cigarette Smoking in Adults at Increased Risk of Coronary Heart Disease. Am J Public Health.2001;91(2):265-9
- (14) Martin PD, Dutton GR, Rhode PC, Horswell RL, Ryan DH & Brantley PJ. Weight loss maintenance following a primary care intervention for low income minority woman, Obesity 2008;16(11): 2462-2467

- (15) Eaton C B, Goodwin M A, Stange K C. Direct Observation of Nutrition Counseling in Community Family Practice. *Am J Prev Med* 2002;23(3):174-9.
- (16) Thande NK, Hurstak EE, Sciacca RE & Giardina EGV. Management of Obesity: A Challenge for Medical Training and Practice, *Obesity* 2009;17(1):107-113
- (17) Klumbiene J, Petkeviciene J, Vaisvalavicius V, Miseviciene I. Advising overweight persons about diet and physical activity in primary health care: Lithuanian health behavior monitoring study. *BMC Public Health* 2006;6:30
- (18) Wadden T ,. Anderson D.A., Foster,G.D. Bennet A; Steinberg C. Sarwer D.B. Obese Women's Perceptions of Their Physicians' Weight Management Attitudes and Practices. *Arch Fam Med* 2000;9(9):854-60
- (19) Flocke S A & Gilchrist V. Physician and Patient Gender Concordance and the Delivery of Comprehensive Clinical Preventive Services. *Med Care* 2005;43(5):486-92
- (20) Henderson JT, Weisman CS. Physician gender effects on preventive screening and counseling: an analysis of male and female patients' health care experiences. *Med Care* 2001;39(12):1281-92.
- (21) Roter D, Larson S. The Roter interaction analysis system (RIAS): utility and flexibility for analysis of medical interactions. *Patient Educ Couns* 2002;46 243–51.
- (22) Winkler J. Die Messung des sozialen Status mit Hilfe eines Index in den Gesundheitssurveys der DHP. In: Ahrens W, Bellach BM, Jöckel KH (eds). *Messung soziodemographischer Merkmale in der Epidemiologie*. RKI- Schriften 1998,1(98):pp 69-74.
- (23) Stirling AM, Wilson P, McConnachie A. Deprivation, psychological distress and consultation length in general practice. *Br J Gen Pract* 2001;51: 456–460.
- (24) Roter DL, Hall JA, Aoki Y. Physician gender effects in medical communication: a meta-analytic review. *JAMA* 2002;288(6):756-64.,
- (25) Hutton C & Gunn J. Do longer consultations improve the management of psychological problems in general practice? A systematic literature review. *BMC Health Serv Res* 2007;17;7:71
- (26) Roter DL & Hall JA. Physician Gender and Patient-Centered Communication: A Critical Review of Empirical Research. *Annu. Rev. Public Health* 2004;25:497-519
- (27) Deveugele M, Derese A, Brink-Muinen van den A, Bensing J, De Maeseneer J. Consultation length in general practice: cross-sectional study in six European countries. *Br Med J* 2002;325(7362):472.
- (28) Deveugele M, Derese A, De Maeseneer J. Is GP–patient communication related to their perceptions of illness severity? *Soc Sci Med* 2002;55:167–75.

- (29) Lurie N, Margolis KL, McGovern PG, Mink PJ, Slater JS. Why do patients of female physicians have higher rates of breast and cervical cancer screening? *J Gen Intern Med* 1997;12(1):34-43.
- (30) Hebl MR, Xu J. Weighing the care: physicians' reactions to the size of a patient. *Int J Obes* 2001;25:1246–1252.
- (31) Sonntag U, Esch T, Hagen L, Renneberg B, Braun V, Heintze C: Locus of control, self-efficacy and attribution tendencies in obese patients- implications for primary care consultations. *Med Sci Monit* 2010;16:330-335.
- (32) Befort CA, Greiner KA, Hall S, Pulvers KM, Nollen, NL, Charbonneau A, Kaur H, Ahluwalia JS. Weight related perceptions among patients and physicians: how well do physicians judge patients' motivation to lose weight? *J Gen Intern Med* 2006;21(10):1086-1090.
- (33) Ogden J, Bandara I, Cohen H, Farmer D, Hardie J, Minas H, Moore J, Qureshi S, Walter F, Whitehead MA: General practitioners' and patients' models of obesity: whose problem is it? *Patient Educ Couns* 2001;44:227-6.
- (34) Heintze C, Metz U, Dieterich A, Wiesner J, Schwantes U. Ursachen von Übergewicht. *Prävention und Gesundheitsförderung* 2008;3(4):289-295.
- (35) Fogelman Y, Vinker S, Lachter J et al. Managing obesity: a survey of attitudes and practices among Israeli primary care physicians. *Int J Obes* 2002;26:1393–1397.
- (36) Flocke SA, Clark A, Schlessman K, Pomiecko G: Exercise, diet and weight loss advice in the family medicine outpatient setting. *Fam Med* 2005, 37(6):415-21.
- (37) Zuzelo PR, Seminara P. Influence of registered nurses' attitudes toward bariatric patients on educational programming effectiveness. *J Contin Educ Nurs* 2006;37:65–73.
- (38) Campbell K, Engel H, Timperio A, Cooper C, Crawford D. Obesity management: Australian general practitioners' attitudes and practices. *Obes Res* 2000;8:459–466.
- (39) Teachman BA, Brownell KD. Implicit anti-fat bias among health professionals: is anyone immune? *Int J Obes* 2001;25:1525–1531.
- (40) Schwartz MB, Chambliss HO, Brownell KD, Blair SN, Billington C. Weight bias among health professionals specializing in obesity. *Obes Res* 2003;11:1033–1039.
- (41) Heintze C, Metz U, Hahn D, Niewöhner J, Schwantes U, Wiesner J, Braun V. Counseling overweight in primary care: An analysis of patient- physician encounters. *Patient Educ Couns* 2010 Jul;80(1):71-5
- (42) Rowland ML: Self-reported weight and height. *Am J Clin Nutr* 1990;52(6):1125-33.

(43) Metz U, Welke J, Esch T, Renneberg B, Braun V, Heintze C: Perception of stress and quality of life in overweight and obese people: implications for preventive consultancies in primary care. *Med Sci Monit* 2009;15:1-6.

2.4 STUDY 4: OBESITY COUNSELING IN PRIMARY CARE – MOTIVATIONAL INTERVIEWING AND SHARED DECISION MAKING

Sonntag, U., Wiesner, J., Fahrenkrog, S., Renneberg, B., Braun, V. & Heintze, C. (2011). Obesity counseling in primary care – Motivational Interviewing and Shared Decision Making. *Patient Education and Counseling*, doi: [10.1016/j.pec.2011.07.026](https://doi.org/10.1016/j.pec.2011.07.026).

2.4.1 ABSTRACT

Objective

The aim of this study was to assess general practitioners' (GP) readiness to involve obese patients in therapy decision making and to determine whether they integrate motivational interviewing techniques.

Methods

Fifty-eight preventive Check-up 35 encounters with overweight and obese patients in primary care were audio recorded in 12 GP practices. The use of motivational interviewing techniques was rated with the Behavior Change Counseling Index (BECCI). The involvement in medical decisions was rated with the Observing Patient Involvement Scale (OPTION).

Results

OPTION and BECCI scores were low (means = 0.71 and 1.65), indicating minimal implementation of shared decision making and motivational interviewing in preventive encounters with these patients. GPs used more motivational interviewing for patients with a BMI > 30 kg/m² than for those with a BMI < 30 kg/m². Female GPs had significantly higher shared decision making scores, indicating that they prefer to involve patients in medical decisions. GPs differed significantly in their use of both approaches.

Conclusions

Shared decision making and motivational interviewing, though known to be successful strategies in lifestyle counseling, are rarely used during obesity encounters in our sample of German GPs.

Practice implications

GPs should be sensitized and trained in the application of these methods.

Keywords: obesity, shared decision making, motivational interviewing, prevention, general practitioner

2.4.2 INTRODUCTION

Counseling about individual behavior change and lifestyle modification for obesity management is a major challenge in primary care.

Primarily GPs as continuous accompanists of patients are asked to deliver care to overweight and obese patients. In particular, obese patients with other cardiovascular risk factors are often counseled by their physician to take more responsibility for their health behavior. They are advised, for example, to increase their physical activity level and make dietary changes (1). These recommendations are emphasized by national (1) and international guidelines (2). Several factors contribute to successful doctor-patient-communication. Two key factors of particular importance in lifestyle counseling are motivational interviewing (MI) and shared decision making (SDM) (3). Shared decision making is the process by which patients and providers collaborate to make decisions about treatment options and targets of therapy. The importance of interaction between physicians and patients has been well documented by evaluating and implementing the SDM model in a broader context (4). Several studies have been conducted to assess the value of this approach (5) and to investigate patients' preferences (6). Patients who participate in the decision making process are more willing to accept their diagnosis and treatment; they also show higher compliance and have better treatment outcomes (7). Our qualitative studies indicate that some physicians adjust their approach to suit patients' preferences and expectations in primary care obesity counseling which facilitates individual treatment of those concerned (8).

A successful counseling strategy of SDM to support patients in their efforts to make lifestyle changes is motivational interviewing (MI) or behavior change talk. MI (9;10) is defined as a directive, client-centered counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence. The examination and resolution of ambivalence is its central goal, and the counselor is intentionally directive in pursuing this goal (11). Cardiovascular risk factors that have been successfully confronted using MI include the BMI, total blood cholesterol, systolic blood pressure (12) and obesity (13). The authors report that MI had a positive effect on health outcomes, even when used in short

consultations of about 15 minutes. MI is particularly suitable for people who are not yet ready to give up unhealthy behavior because of their incomplete awareness of the problem, their unresolved ambivalence, or their perceived lack of self-efficacy to bring about a positive change (12). The latter is assumed to be typical for obese patients. MI has been found to improve weight loss, treatment adherence, and attrition rates in group behavioral weight loss (14). Cox et al reported higher confidence of patients to change nutrition after joining a MI-based consultation (15). To our knowledge, however, there are only a few studies examining GPs' use of MI for obesity management (15;16). These studies reported a low adherence of GPs to MI.

However, common barriers in counseling overweight or obese patients are related to physicians' lack of time and limited counseling expertise (17-19). Studies indicate that patients and physicians seem to differ in their views about the causes of overweight as well as in their counseling expectations (20-22). These differences could hamper a successful counseling process in primary care, especially if they are not identified.

In 1989 German health authorities initiated a screening program (the so-called Check-up 35) emphasizing the detection of cardiovascular diseases in primary care. Those who are over 35 and have public health insurance are eligible to participate in this program with 2-year screening intervals (23). The Check-up 35 includes the assessment of family history, the identification of risk factors (systolic blood pressure, diabetes mellitus, smoking, hypercholesterolemia and obesity), a physical examination, and individual risk counseling. The Check-up 35 program, which is frequently used in the German health care system, offers an opportunity to address lifestyle and weight counseling in Germany's primary care system.

To our knowledge, there is no study that evaluates the use of MI and SDM for obesity treatment in primary care by GPs without previous training. The two strategies are linked in terms of increasing patients' motivation, but their relation has not been conceptually described. We assume that SDM operates as a joint comprehensive construct built on the doctor-patient relationship and that MI assists and facilitates shared decision making by hitting SDM targets as an individual counseling technique. GPs are thought to use intuitive and empirical techniques to collaborate with patients and motivate them. Aims of this study are to provide quantitative data on the use of SDM and MI in primary care

obesity management and to generate hypotheses regarding their implementation. Analyzing the combination of SDM and MI will provide essential information for successful treatment of obese patients in primary care.

2.4.3 METHODS

2.4.3.1 PARTICIPANTS

After informing 70 GP surgeries in Berlin, a total of 12 GPs working in private practices agreed to participate in this study. 45 of the initial 70 surgeries did not reply at all. Reasons for refusing participation were: new to practice, not enough patients joining check ups, concerns about possible influences on consultation atmosphere and low interest in research. We did not offer GPs incentives for participating nor recruiting patients. The participating GPs were asked to audiotape the individual risk counseling with overweight or obese patients ($\text{BMI} \geq 25 \text{ kg/m}^2$) participating in the regular preventive Check-up 35 program. GPs were only informed that we were conducting a study regarding overweight and obesity management in primary care. They were not told that specific counseling techniques like MI were of interest. All patients who had no psychiatric illnesses or language barriers were asked by the physicians to participate in this study. GPs audio recorded their regular counseling talks in which patients were informed about their individual risk profile and given medical recommendations. The audio recorded dialogues were anonymously transcribed.

2.4.3.2 DATA ANALYSIS

The Behavior Change Counseling Index (BECCI) (24) and the Observing Patient Involvement Scale (OPTION) (25) were used for assessment and analyses of the encounters. The occurrence of any medical problem requiring a decision was a precondition for selecting appropriate encounters.

OPTION SCALE

The OPTION scale was developed by Elwyn et al and assesses the extent to which physicians involve patients in decisions across different clinical situations. It has been used in observational and interventional studies covering a wide range of medical conditions encountered in general practice (26;27). The instrument consists of 12 items on five-point scales ranging from 0 (behavior not observed) to 4 (behavior observed and executed to a high standard). The raw total score ranges from 0 (0 level in all items) to 48

(four level in all items). Thirteen points indicate minimal use of SDM. The authors (25) provide a manual with specific descriptions on how to assess each scale point of the 12 items. OPTION ratings based on audiotapes were done by SF. Mean scores between 0 and 4 were calculated for each consultation. Fifteen encounters (25% of the sample) were coded by two trained raters (JW and SF). The intraclass correlation coefficient (ICC) of $R=0.62$ was acceptable.

BECCI

The BECCI measures practitioner skill in health behavior change counseling and was selected to code the use of MI techniques by GPs in this study. The BECCI categorizes eleven aspects to produce a global rating. Each item is rated on a five- point Likert scale ranging from 0 (not at all) to 4 (great extent). Ratings reflect the extent to which an action was carried out. The BECCI was coded by JW. An overall mean score was calculated for each consultation. To test interrater reliability, 15 encounters were independently coded by two trained raters (JW and US). The intraclass correlation coefficient (ICC) of $R=0.68$ was acceptable.

Descriptive statistics and univariate analysis of variance were performed to assess the use of motivational strategies and the implementation of SDM. Correlations were performed to explore associations between the two concepts.

The study was approved by an independent ethics committee at the Charité - Universitätsmedizin Berlin. Informed consent for participation and publication was obtained from all participating patients and GPs.

2.4.4 RESULTS

In the present study, a medical problem requiring a decision was identified in 58 of 60 encounters. These talks were analyzed using the two rating instruments. Consultations were held by seven female and three male GPs with a mean age of 51 and a mean BMI of 22.6 kg/m^2 . Each GP contributed an average of six encounters to this study.

Thirty-eight (65%) of the 58 encounters involved female patients; the total patient population had a mean age of 57 and a mean BMI of 32.39 kg/m^2 . 32% of patients showed a BMI $< 30 \text{ kg/m}^2$ and 68% were classified as obese showing a BMI $\geq 30 \text{ kg/m}^2$. Patients had been consulting their GP for an average of 7.03 years. They had no previous cardiovascular diagnosis in 45% of the cases, normal blood pressure in 76% ($< 140/90$

mmHg) and a normal cholesterol level in 53% ($\leq 200\text{ml/dl}$). Patient characteristics did not differ between GP practices. An encounter lasted 9.17 minutes on the average, varying between 1.55 and 32.54 min.

The mean BECCI score in our sample was 1.65 (SD=0.7) with a range of .09 to 3.09, which indicates a low to moderate use of MI techniques. Table 1 shows differences in the use of several aspects of change talk. Positive ratings were given to item 6 (“assessing the use of empathic listening”) and item 10 (“assessing whether the GP expresses respect for the patient’s choice regarding behavior change”). However, item 8 (“assessing whether the GP acknowledges challenges about change”) and item 7 (“assessing the use of summaries”) were observed less often.

Table 2.4-1: Mean, standard deviation (SD) and maximum scores for BECCI items

Item	mean score	SD	max. score*
1. Practitioner invites the patient to talk about behavior change.	1.24	.77	3
2. Practitioner demonstrates sensitivity to talking about other issues.	2.12	.97	3
3. Practitioner encourages patient to talk about current behavior or status quo.	1.24	.98	3
4. Practitioner encourages patient to talk about change.	1.60	.70	3
5. Practitioner asks questions to elicit how the patient thinks and feels about the topic.	1.60	1.11	4
6. Practitioner uses empathic listening statements when the patient talks about the topic.	2.26	1.00	4
7. Practitioner uses summaries to bring together what the patient says about the topic.	1.02	1.00	4
8. Practitioner acknowledges challenges about behavior change that the patient faces.	.97	1.02	3
9. When practitioner provides information, it is sensitive to patient concerns and understanding.	1.95	.95	4
10. Practitioner actively conveys respect for patient choice about behavior change.	2.22	1.20	4
11. Practitioner and patient exchange ideas about how the patient could change current behavior.	1.95	1.00	4

Item scores range from 0 to 4 (the action is carried out: 0 not at all, 1 minimally, 2 to some extent, 3 a good deal, 4 a great extent).

* minimum is not shown, since it was 0 for all items.

ANOVAs showed that GPs differed significantly in the use of behavior change talk ($p < .001$); the mean BECCI sum score for GPs ranged from 0.5 to 2.7. An elevated BMI ($> 30 \text{ kg/m}^2$) was a predictor for more change talk being elicited by GPs (mean BECCI: 1.9)

than in patients with a BMI of 25 to 30 kg/m² (mean BECCI: 1.2) (p=.045). The BECCI score did not correlate with the GP or patient gender, social status, age, diet status or the length of the GP-patient relationship.

The mean OPTION score was 0.71 (SD=0.27) with a range of 0.083 to 1.42. Altogether 15% of the talks scored one or more points, indicating a minimal use of SDM. Table 2 shows differences in the use of several aspects of patients' involvement. Ratings are slightly higher for item 1 ("the GP draws attention to a problem that requires decision making"), item 6 ("the GP explores the patient's expectations or ideas"), and item 4 ("the GP lists possible options") than for the other items but also on a low level. Item 10 ("the GP elicits the patient's preferred level of involvement in decision making") received a rating of 0 for all encounters, indicating that it was never included in any talk. Ratings were very low for item 3 ("the GP assesses the patient's preference regarding information received") and item 8 ("the GP checked that the patient understood the information").

Table 2.4-2: Mean, standard deviation (SD) and maximum scores for items of the OPTION scale

Item	mean score	SD	max. score*
1. The clinician draws attention to an identified problem as one that requires a decision making progress.	1.71	.622	3
2. The clinician states that there is more than one way to deal with the identified problem (equipoise).	.86	.576	2
3. The clinician assesses the patient's preferred approach to receiving information to assist decision making.	.07	.256	1
4. The clinician lists "options", which can include the choice of "no action".	1.05	.510	2
5. The clinician explains the pros and cons of options to the patient.	.91	.57	2
6. The clinician explores the patient's expectations about how the problem is to be managed.	1.10	.742	3
7. The clinician explores the patients concerns about how the problem is to be managed.	.66	.548	2
8. The clinician checks that the patient has understood the information.	.16	.365	1
9. The clinician offers the patient explicit opportunities to ask questions during the decision making process.	.95	.804	2
10. The clinician elicits the patient's preferred level of involvement in decision making.	.00	.000	0
11. The clinician indicates the need for a decision making (or deferring) stage.	.38	.587	2
12. The clinician indicates the need to review the decision (or deferment).	.66	.947	3

Item scores range from 0 to 4 (0 the behavior is not observed, 1 a minimal attempt is made to exhibit the behavior, 2 the behavior is observed and a minimum skill level achieved, 3 the behavior is exhibited to a good standard, 4 the behavior is exhibited to a very high standard).

*minimum is not shown, since it was 0 for all items except item 1, where the minimum score was 1.

ANOVAs showed significant differences in the OPTION sum score related to the GP's individuality ($p < .001$, range from 0.083 to 1.19) and gender, indicating that female GPs elicited a higher level of patient involvement ($p = .001$, mean sum score of 0.75 for female GPs and 0.42 for male GPs). Another significant difference was related to physician-patient gender dyads ($p = .002$): the mean OPTION score was 0.83 for the female GP-male patient dyad but only 0.25 for the male-male dyad.

BECCI and OPTION sum scores were not significantly correlated ($p = .062$), whereas single items of the two instruments correlate. BECCI ($r = .557$, $p < .001$) and OPTION ($r = .366$, $p = .026$) sum scores correlated positively with the length of talks. MI was utilized significantly more often ($p < .001$) in talks longer than 9.17 minutes (median length) than in shorter ones.

2.4.5 DISCUSSION AND CONCLUSION

This study aimed at examining the utilization of SDM and MI techniques in regular preventive Check-up 35 consultations with obese patients. Motivating patients by involving them in decision making could increase their self-efficacy and thus result in successful weight loss (28). However, we found a relatively low level of shared decision making and MI implementation in our sample of counseled obese patients. GPs in our study had no previous training in either of these aspects of successful counseling. Nevertheless, MI is used more often here than in a study by Moran et al (29) that assesses its use during diabetes counseling talks.

2.4.5.1 DISCUSSION

Our analyses showed more frequent use of easily applicable MI strategies like empathic listening, providing appropriate information or encouraging patients to talk about change. Eliciting the patient's view (item 5 on the BECCI) proved to be a useful motivational strategy that enables individually tailored counseling (8). Often neglected aspects of MI are those that probably require more effort like acknowledging the challenges patients are facing or summarizing patients' statements. Negative stereotypes of GPs towards obese patients, e.g. regarding less discipline (18), may lead to a selective perception and limited valuation of patients' challenges. Another explanation can be found in GPs' perceived lack of counseling competencies (19). Their performance would be improved by further training in communication, particularly in the challenging skill of change talk. As

suggested also by Cox et al (15) it is not necessary to implement the whole MI construct, but to use simple questions or statements to foster ambivalence.

Our analysis showed significantly more frequent use of MI in counseling patients with a BMI > 30 kg/m². Guidelines strongly recommend interventions concerned with nutrition, physical activity and aspects of behavioral therapy. This finding reflects one aspect of guideline adherence.

A review by Rubak et al (12) revealed that MI is more effective when encounters take place on a regular and continuous basis. The German health Check-up 35 program is typically conducted every second year. However, frequent counseling sessions seem to be necessary to implement successful lifestyle changes using MI.

Time consuming counseling with MI does not necessarily have to be offered by GPs. Rubak et al (12) reported that MI encounters did not differ in effectiveness depending on the person conducting them. In Germany, delegation of tasks to trained practice nurses is being discussed and has been partially implemented - for example, in nutrition counseling and diabetes management. MI consultations offered by practice nurses could help to relieve the heavy workload of GPs, but they must be examined more closely for their effectiveness.

SDM results were disappointing; especially since 85% of talks did not achieve the minimum score for this patient centered approach. Previous analysis of the talks clearly showed that GPs' recommendations are more patient-centered and individually tailored if patients are given the chance to reflect on possible causes of their overweight (26). This aspect is partly reflected in item 6 and 7 ("exploration of patients' expectations and/or concerns") of OPTION but was not regularly incorporated into the talks analyzed.

In our study, female GPs used significantly more SDM techniques; the difference was even more marked when considering the patients' gender: the SDM level was highest in female GP-male patient encounters and lowest when two men were talking to each other. Another analysis examining these talks also identified gender-related differences relating to the length of talks and the content of the encounters.

These findings are in line with other research results. Lurie et al (30) reported that female GPs were more focused on preventive services and attached more value to them. Female GPs are more likely to communicate about partnership building, encourage questions

from patients, and talk about psychosocial problems (31). This pattern may support a patient centered approach in preventive consultations, particularly in conjunction with lifestyle counseling. Preventive services and the in particular communication may change due to the increasing number of female medical students. However, even female GPs did not achieve a minimum sum score of SDM.

Involving patients in decisions regarding lifestyle changes is effective and also consistent with their wishes (32), but this approach seems to be difficult for GPs to implement. One possible reason is that our sample comprises older GPs, who were probably not taught these concepts during their medical degree. Moreover, SDM is time-consuming (33), another reason for avoiding such strategies and adopting a traditional approach. German GPs see more patients each day than GPs from other European countries (34), this could partly explain the shortage of encounters. Our analysis revealed a significant positive correlation between the length of talks and the use of MI and SDM. Unfortunately, the German health system does not cover lifestyle change counseling except in conjunction with Check-up 35 programs.

The low level of MI and SDM utilization may also be partly due to GPs underestimating obese patients' motivation (15;35). Moreover, some GPs may not create an atmosphere conducive to patient- centered weight loss counseling because they fear negative patient reactions or lack confidence in their communication skills (17-19).

A major finding consistent with other results of this project (8;35) is the high variety of Check-up 35 encounters when comparing GPs. We found that GPs differed markedly in their use of MI and SDM. Counseling styles seem to depend more on the provider than on the recipient of counseling. Guidelines for structuring preventive encounters may thus be helpful. Finally, the identified deficits in SDM and MI can be partly attributed to the consultation setting of preventive Check-up 35s, e.g. the low level of assessing the patient's preference regarding information receipt.

2.4.5.2 STRENGTHS AND WEAKNESSES

Our study results are limited by the small sample size and therefore likely not generalizable. Additionally, we had a lack of sufficient variance in several variables. GP participation in this study was voluntary and we were not offering any incentive. Those who took part probably had a special interest in improving their communication skills. Delivery of MI and realizing SDM may occur over several visits and it may not be fair to

assess quality of physicians' obesity counseling after a single visit. The interrater reliability is only on a moderate level which diminishes validity of our findings.

Major strengths of our study are the use of objective data (audio recorded encounters) provided by GPs and the use of two well-validated, standardized assessment instruments which are easy to implement after a short training period. This exploratory design is suitable, since the study aimed at generating rather than testing hypotheses regarding the use of MI and SDM.

2.4.5.3 CONCLUSION

The results of this study provide important information on current weaknesses and strengths of overweight counseling by GPs. Our analyses in a sample of German GPs showed that SDM and MI are rarely used in preventive encounters with obese patients and that encounters differ widely among GPs. Practical Guidelines are needed to support and structure consultations that incorporate elements of motivational interviewing. Additionally, strategies should be developed to strengthen the involvement of obese patients in their management. Due consideration should be given here to GPs' existing and expandable competencies. The Check-up 35 in its present form seems insufficient for implementing long-term lifestyle changes. Only continuous patient-centered care can trigger patients' motivation and achieve long-term effects.

2.4.5.4 PRACTICE IMPLICATIONS

GPs have to be sensitized and trained in these effective counseling techniques. Moreover, future studies should examine whether lifestyle counseling can be partially delegated to other professionals, like practice nurses, and what special training would then be required.

Conflict of interest

The authors have no conflict of interests and are fully responsible for the content of the manuscript. Ethical approval: Charité Ethics Board.

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I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

References

- (1) Leitlinien der deutschen Adipositasgesellschaft: Prävention und Therapie der Adipositas [Guidelines of the German Association of Obesity: Prevention and therapy of obesity]; www.adipositas-gesellschaft.de/leitlinien.php, last assessed 3rd September 2010, 2007.
- (2) Pignone MP, Ammerman A, Fernandez L, Orleans CT, Pender N, Woolf S, Lohr KN, Sutton S: Counseling to promote a healthy diet in adults: a summary of the evidence for the U.S. Preventive Services Task Force. *Am J Prev Med* 2003;24:75-92.
- (3) Felder-Puig R, Turk E, Guba B, Wild C. Das ärztlich-therapeutische Gespräch. Die Effektivität verstärkter Arzt-Patienten-Kommunikation [Medical therapeutic talks-efficacy of intensive physicians- patients- communication]; Wien, Ludwig Boltzmann Institut für Health Technology Assessment , 2006.
- (4) Stewart M, Brown JB, Weston WW, McWhinney IR, Williams C, Reeman TR. Patient-centered medicine: transforming the clinical method. Radcliffe Medical Press, 2003.
- (5) Griffin SJ, Kinmonth AL, Veltman MV, Gillard S, Grant J, Stewart M. Effect on health-related outcomes of interventions to alter the interaction between patients and practitioners: a systematic review of trials. *Ann Fam Med* 2004;2:595-608.
- (6) O'Connor AM, Stacey D, Rovner D, Holmes-Rovner M, Tetroe J, Llewellyn-Thomas H: Decision aids for people facing health treatment or screening decisions; *Cochrane Database Syst Rev*, 2001.
- (7) Scheibler F, Janssen C, Pfaff H: Shared decision making: an overview of international research literature. *Soz Präventivmed* 2003;48:11-23.
- (8) Heintze C, Metz U, Hahn D, Niewöhner J, Schwantes U, Wiesner J, Braun V: Counseling overweight in primary care: An analysis of patient-physician encounters. *Patient Educ Couns* 2009;doi:10.1016/j.pec.2009.10.016.
- (9) Miller WR: Motivational interviewing with problem drinkers. *Behav Psychoth* 1983;11:147-72.
- (10) Rollnick S, Miller WR: What is motivational interviewing? *Behav Cogn Psychoth* 1995;23:325-34.
- (11) Rollnick S, Miller WR, Butler C: *Motivational Interviewing in Health Care: Helping Patients Change Behavior (Applications of Motivational Interviewing)*. New York: The Guilford Press, 2008.
- (12) Rubak S, Sandboek A, Lauritzen T, Christensen B: Motivational interviewing: a systematic review and meta-analysis. *Brit J Gen Pract* 2005;55:305-12.
- (13) Van Dorsten B. The use of motivational interviewing in weight loss. *Cur Diab Rep* 2007;7:386-90.

- (14) DiMarco ID, Klein DA, Clark VL, Wilson GT: The use of motivational interviewing techniques to enhance the efficacy of guided self-help behavioral weight loss treatment. *Eat Behav* 2009;10:134-36.
- (15) Cox ME et al: Effects of counseling techniques on patients' weight-related attitudes and behaviors in a primary care clinic. *Patient Educ Couns* (2011), doi:10.1016/j.pec.2011.01.024.
- (16) Pollak I, Østbye T, Alexander SC, Gradison M, Bastian LA, Namenek RJ, Brouwer MS, Lyna P: Empathy goes a long way in weight loss discussions; 2007, *J Fam Pract* 2007;56:1031-36.
- (17) Kushner RF: Barriers to providing to nutrition counseling by physicians. *Prev Med* 1995;24:546-52.
- (18) Foster GD, Wadden TA, Makris AP, Davidson D, Sanderson RS, Allison DB, Kessler A: Primary care physicians' attitudes about obesity and its treatment. *Obes Res* 2003;11:1168-77.
- (19) Thuan JF, Avignon A: Obesity management: attitudes and practices of French general practitioners in a region of France. *Int J Obes (Lond)* 2005;29:1100-06.
- (20) Ogden J, Bandara I, Cohen H, Farmer D, Hardie J, Minas H, Moore J, Qureshi S, Walter F, Whitehead MA: General practitioners' and patients' models of obesity: whose problem is it? *Patient Educ Couns* 2001;44:227-33.
- (21) Ogden J, Flanagan Z: Beliefs about the causes and solutions to obesity: a comparison of GPs and lay people. *Patient Educ Couns* 2008;71:72-78.
- (22) Heintze C, Metz U, Dieterich A, Schwantes U, Wiesner J: Causes of overweight. A content analysis of counseling dialogues between physicians and patients. *Präv Gesundheitsf* 2008;3:289-95.
- (23) Bundesausschuss der Ärzte & Krankenkassen: Richtlinien über die Gesundheitsuntersuchung zur Früherkennung von Krankheiten (Guidelines concerning the Health Check-up 35 for early detection of diseases); www.g-ba/downloads/RL-Gesundheit.pdf -last assesses 3rd September 2010, 2001.
- (24) Lane C, Huws-Thomas M, Rollnick S, Hood K, Edwards K, Robling M: Measuring adaptations of motivational interviewing: The development and validation of the Behaviour Change Counseling Index (BECCI). *Patient Educ Couns* 2005;56:166-73.
- (25) Elwyn G, Edwards A, Wensing M, Grol R: Shared decision making measurement using the OPTION instrument. Cardiff, Cardiff University, 2005.
- (26) Loh A, Simon D, Henning K, Henning B, Härter M, Elwyn G: The assessment of depressive patients' involvement in decision making in audio-taped primary care consultations. *Patient Educ Couns* 2006;63:314-18.

- (27) Goss C, Moretti F, Mazzi MA, Del Piccolo L, Rimondini M, Zimmermann C: Involving patients in decisions during psychiatric Consultations. *Brit J Psychiat* 2008;193:416-21.
- (28) Sonntag U, Esch T, Hagen L, Renneberg B, Braun V, Heintze C: Locus of control, self-efficacy and attribution tendencies in obese patients- implications for primary care consultations. *Med Sci Monit* 2010;16:330-35.
- (29) Moran J, Bekker H, Latchford G: Everyday use of patient-centred, motivational techniques in routine consultations between doctors and patients with diabetes. *Patient Educ Couns* 2008;73:224-31.
- (30) Lurie N, Margolis KL, McGovern PG, Mink PJ, Slater JS: Why do patients of female physicians have higher rates of breast and cervical cancer screening? *Gen Intern Med* 1997;12:34-43.
- (31) Roter D, Hall J, Aoki Y: Physician Gender Effects in Medical Communication: A meta-analytic Review. *J Amer Med Assoc* 2002;288:756-64.
- (32) Coulter A, Magee H: *The european patient of the future*. Maidenhead, Open University Press, 2003.
- (33) Edwards A, Elwyn G, Wood F, Atwell C, Prior L, Houston H: Shared decision making and risk communication in practice. A qualitative study of GPs' experiences. *Brit J Gen Pract* 2004;55:6-13.
- (34) Björnberg A, Garrofé BC, Lindblad S: *Euro Health Consumer Index; Health Consumer Powerhouse AB*, 2009.
- (35) Befort CA, Greiner KA, Hall S, Pulvers KM, Nollen NL, Charbonneau A, Kaur H, Ahluwalia JS: Weight-related perceptions among patients and physicians: how well do physicians judge patients' motivation to lose weight? *J Gen Intern Med* 2006;21:1086-90.

2.5 STUDY 5: GPs' ATTITUDES, OBJECTIVES AND BARRIERS IN COUNSELLING FOR OBESITY – A QUALITATIVE STUDY

Sonntag, U., Brink, A., Renneberg, B., Braun, V. & Heintze, C. (2011). GPs' attitudes, objectives and barriers in counselling for obesity – a qualitative study. *European Journal of General Practice*, doi: [10.3109/13814788.2011.627424](https://doi.org/10.3109/13814788.2011.627424).

2.5.1 ABSTRACT

Background

Increasing prevalence of obesity worldwide requires providing support for many patients. GPs in particular, as long-term supervisors of patients, are asked to deliver care to those affected.

Objectives

This qualitative study aimed at identifying GPs' perspectives on counseling overweight and obese patients.

Methods

To that end, semi-structured interviews were conducted in Berlin with GPs regarding their objectives and barriers in overweight care. Fifteen GPs participated; interviews were audiotaped, transcribed and analysed using qualitative content analysis.

Results

Analysis showed a differentiated pattern of medical and psychosocial objectives in obesity treatment. Overall, it was seen that GPs wanted to play a relatively passive role in treatment of obesity. In particular, motivating patients was a key goal of primary care consultations; at the same time patients' lack of motivation was found to be a main barrier to successful treatment.

Conclusions

Care for obese patients is perceived as ineffective and frustrating. Recommended solutions include further education to improve GPs' communication techniques eg, to trigger patients' motivation.

Keywords: obesity, primary care, counselling

2.5.2 BACKGROUND

Prevention and treatment of obesity is one task that general practitioners (GPs) face. It presents a challenge for primary health care providers, especially in the context of blame and responsibility. Successful interventions need to consider elevated body weight as a complex phenomenon whose treatment requires extensive changes in lifestyle and behaviour.

GPs, as long-term supervisors of patients, are key persons in long-term treatment of obesity (1,2). Overweight patients tend to see their GP more frequently than patients with a normal body-weight do (3, 4).

The American Medical Association (AMA) emphasizes the crucial role of GPs in obesity management: Patients are asked to consult their GP first. Only when this strategy fails is it recommended to consult other health care providers such as dieticians or psychologists (5). In Germany, where patients have low-threshold access to all medical specialisations, obese patients do not necessarily see their GP first.

In face of this high responsibility, many GPs feel ineffective in weight management of their patients (6, 7). Studies have established several barriers perceived by GPs in obesity therapy. GPs reported lack of competencies as well as a lack of reward for this particular task. Furthermore, they reported that addressing the topic of overweight to their patients is detrimental to doctor-patient interactions. In their view, reducing overweight is the responsibility of patients and does not primarily require a medical solution (8). Patients in turn ask for medical and external solutions and try to delegate the responsibility to their physicians (9, 10). Their perception of GPs as relevant sources of support can in fact be seen as an opportunity to influence patients' health behaviour.

However, studies also reported GPs' negative stereotypes of obese patients. One common prejudice is that they are lazy and undisciplined (11, 12). Certain subgroups of overweight patients are less frequently counselled, in particular those with a lower income (13).

Supporting these results, a study by Wadden et al showed that patients have low confidence in their GP's treatment of obesity, although they were very confident in the general care offered by the same doctor (14). In addition, Ely et al reported that patients

do not feel that their GPs support them adequately in the task of weight management (15).

Due to low success rates, treatment of obesity is often frustrating for both patients and physicians. Development of successful intervention strategies that focus on long-term effects of weight maintenance needs to consider patients' and GPs' views alike.

This paper aimed at clarifying GPs' perspectives on their health care offered to overweight and obese patients. Of particular interest was how GPs described their role in care for overweight and obese patients and their main objectives when counseling these clients. Moreover, we analysed whether specific patient characteristics led the GPs to indicate necessity of treatment, how they addressed the topic to their clients and which barriers they perceived.

2.5.3 METHODS

Qualitative methodology was chosen, given that it enables acquisition of a broad range of data and a detailed understanding of GPs' attentions and objectives in obesity treatment.

2.5.3.1 PARTICIPANTS

We conducted a cross-sectional study of 15 primary care physicians (GPs) working in solo practices. GPs were recruited by the local board of health in Berlin. Of the 70 GPs invited to participate, 15 accepted. No information was available on the GPs who refused. Participants were invited to a semi-structured guided interview using mainly open-ended questions and focusing on communication and counseling habits in obesity treatment. The interviews were carried out mainly in the GPs' practices and were audiotaped.

2.5.3.2 DATA ANALYSIS

The interviews were transcribed anonymously and subjected to Mayring's technique for qualitative content analysis, which is generally acknowledged to meet the criterion of rigor (16-18). The analysis consisted of identifying categories of individual counseling strategies. Codings of two interviews were elaborated and specified independently by three scientists (AB, US and CH), who subsequently compared their results. When ratings of the sample differed, a consensus was reached by a re-evaluation and panel discussion. The investigators agreed on 85% of the initial coding categories and, after discussion, reached a consensus on the final data coding. The content was then analysed by

inductively developed categories that focused on overweight counseling. To facilitate the coding process, the qualitative data analysis software AtlasTi was used. The study was approved by an independent ethic committee. Each GP provided their informed consent to publication of the data.

2.5.4 RESULTS

2.5.4.1 SAMPLE

Six male and 9 female GPs (n=15) were interviewed. Interviews lasted between 37 and 81 minutes with a mean length of 52 minutes. GPs had an average age of 51 years. None of the GPs showed an elevated body mass index (BMI) (mean: 22.4 kg/m²).

2.5.4.2 GPs' ROLE IN OBESITY THERAPY

GPs' attitudes towards counseling overweight and obese patients varied substantially. They did not generally feel responsible for overweight therapy. For the main part, GPs wanted to play a passive role in treatment of obesity and saw themselves as supervisors of weight management, as the following quotation shows:

"Today I can say: It is one's own... disease ...it's *their* weight, *their* cholesterol... and there are possibilities to treat this!... or to live according to certain guidelines. But,...if they do not want this, then I take it as it is." (GP1)

On the other hand, one GP called himself a "gathering place" for all health-related complaints and underlined his responsibility for patients' health.

Only a few of the GPs wanted to play an active role in obesity treatment and guide their patients:

"As a GP, I have to make sure that patients come back to me. Not because of the money, but because if they are not under my supervision I haven't won anything! I have to create a situation that encourages the patients to come back to me, even if they did not reach the goals we agreed on." (GP15)

2.5.4.3 NEED TO TREAT

Several medical and nonmedical reasons for treating overweight and obese patients were mentioned by GPs. When deciding whether to counsel and treat elevated body weight, GPs considered patients' body weight and in particular the body mass index (BMI), their visual impression of patients and their assumption of risk factors and comorbidities.

Another medical reason named by GPs was prevention of obesity-associated diseases. The nonmedical reasons that GPs cited were demographical aspects of patients (eg, age), their general impression of patients and patients` requirements.

GPs mainly defined a need to treat as related to an elevated BMI. Patients with a BMI above 30 kg/m² were regularly treated for their body weight, whereas patients with a BMI between 25 kg/m² and 30 kg/m² were treated only if the GPs` visual impression deemed it necessary. In addition, GPs took into consideration their general perception of a patient when planning interventions.

“Hmm....I do not regularly consider their weight objectively instead I consider the visual effect and ...hmm..I address the topic with those who seem to be overweight.” (GP3)

A main determinant of GPs` therapy decisions are obesity-associated diseases, in particular cardiovascular risks.

“If I have a patient who is overweight and shows a high blood pressure, extremely high level of cholesterol, etcetera, who is smoking, etcetera... then I would tell him: `It won`t work like this! Something has to change!’” (GP14)

GPs considered epidemiological characteristics of patients when planning an intervention. The following remark provides an example:

“I have a 65-year-old or a 72-year-old sitting there. And then...well...I am not so strict as to say ‘Look, you urgently have to lose 10 kilos!’ and so forth. No!” (GP14)

2.5.4.4 SITUATIONS IN WHICH THE TOPIC OF OVERWEIGHT IS ADDRESSED

GPs named various situations in which they confront their patients with this issue. Some GPs bring up the topic of overweight and obesity spontaneously in consultations. Others address the topic in specific situations, e.g., during a standardized preventive programme, or attempt to introduce the topic via related comorbidities (e.g., knee problems) or acute morbidities (eg, gastro-intestinal diseases). Some GPs offer extra appointments to talk more intensively about elevated body weight, as the following quotation shows:

“If you`d seen my practice this afternoon, where we had to deal with 60 patients, it would be clear that I cannot conduct any consultations on obesity. But I can offer extra appointments for that purpose.” (GP5)

Additionally, some GPs reported that they do not broach this topic in first contacts with new patients. They maintained that it was their priority to build up a reliable relationship first before discussing such sensitive topics.

2.5.4.5 GPs' OBJECTIVES IN OBESITY TREATMENT

Various objectives in counseling overweight and obese patients were identified. Some GPs concentrated on biomedical ones such as prevention of related diseases, weight reduction, general improvement of clinical parameters and reduction in intake of medications. Most GPs, however, reported a combination of medical and psychosocial objectives. Table 2.5-1 provides an overview of psychosocial objectives and exemplary quotations.

Table 2.5-1: GPs' psychological objectives in obesity therapy

Psychosocial objectives	Quotation
Providing of information	"Well, I want to communicate...hmm... which...risks may occur! For the musculoskeletal system, as well as the risk of diabetes... (GP 12)"
Clarification of individual responsibility	"Well...I want to kindly point out to the patient that their interest in their own health is very important and that they have to develop their own actions based on this!" (GP 9)
Awareness of the problem	"Well, the overweight often do not know what risk they carry in their body... in many organs" (GP 12)
Assessment of patients' views and needs	"There is an entire person and there is always a reason why a person has such a body weight. That means it makes little sense to talk about weight if there are totally different things in the background that maintain the whole situation." (GP 14)
Development of practicable concepts for everyday life	To tell them: "Look first at what you could perhaps...hmm...exclude in daily life or that you perhaps stop using lifts or the like!" (GP8)
Motivation regarding behavior change	"Motivate, motivate, motivate!" (GP 7)

2.5.4.6 BARRIERS TO OBESITY TREATMENT

GPs reported several barriers in their consultancies with overweight and obese patients. One central restriction for many GPs was seen in a lack of treatment possibilities due to material and time-related constraints (e.g., patients have to pay for treatment of their overweight)

"Well, I cannot handle this on my own...to assist in weight reductions.... continuously. That... that's impossible!" (GP 15)

The second main barrier perceived by GPs was patients' lack of motivation and health consciousness.

"...Success in therapy is due solely to motivation and anything I do cannot be as successful as that [motivation]..."(GP13).

2.5.5 DISCUSSION

Aim of this qualitative study was to investigate GPs' attitudes, objectives and barriers regarding treatment of overweight and obese patients. GPs' general attitudes are reflected in their concept of playing a relatively passive role in obesity management. In line with other studies, GPs emphasized the active role of patients in achieving necessary lifestyle changes and see themselves as supervisors of behaviour changes (9). Hence, increasing patients' motivation was one of GPs' main objectives. At the same time, lack of motivation was identified as a main barrier for success because patients are perceived as unwilling to be motivated. Quantitative data from Visser et al (2008) support these negative attitudes towards obese patients (19).

GPs focus in their consultations on patients' motivation to take responsibility for their health. In contrast, patients, especially those with a BMI above 35 kg/m², hope for external and medical solutions to their obesity (9, 10). One main means of generating motivation is to apply effective communication techniques. Motivational interviewing (20) as one validated communication strategy was found to be helpful in weight management (21, 22). It is suggested that GPs be trained in motivational interviewing techniques and implement these into regular care for overweight and obese patients.

Grief et al (2008) found that GPs with a high level of obesity-specific knowledge are more likely to believe in the success of their therapy. This finding underlines the meaningfulness of further education for primary health care providers who deal with overweight and obese patients (23).

GPs in our sample reported that they treat overweight and obesity rarely as a single condition but mainly in association with cardiovascular diseases. Therefore, standardized prevention instruments (e.g., the Check-up 35) were used as a door to discussing overweight. A common strategy to address the topic is via related laboratory results,

which seem to facilitate talks about this delicate issue (24,25). Additionally, guidelines structuring preventive encounters could support GPs in terms of lifestyle counseling.

In line with other studies (26), GPs named several physical characteristics for paying attention to treat obesity; existing comorbidities and the BMI were particularly relevant parameters. According to the guidelines for obesity management, GPs tend to treat patients with a BMI over 30 kg/m² (1, 2) and see a BMI between 25 kg/m² and 30 kg/m² as relevant for therapy only if comorbidities exist. However, nonmedical triggers such as GPs' general impression of patients were mentioned as well. Some GPs reported that they treat obesity only if patients appear to suffer from it.

In sum, our analysis revealed a differentiated pattern of medical and psychosocial objectives in overweight and obesity treatment, which reflects a holistic, patient-centred approach in primary care and is a remarkable strength of GPs' long-term care. The high demands of this form of care on GPs contrast to the reported lack of time and material available to offer efficient interventions for obesity. Therefore, the implementation of team-oriented rather than GP-centred care models is suggested. To delegate tasks to trained nurses, psychologists and other specialists would lead to an integrative care that could be monitored by GPs. A review of Tsai et al (2009) supports the need for collaborative care in obesity management (27). The authors concluded that low- and moderate-intensity counseling delivered by GPs alone is unlikely to result in clinically significant weight loss. Ely et al (15) show that patients agree that obesity treatment can be partly delivered by other health professionals but insist on having their GPs regularly involved. This view is consistent with recommendations of guidelines for obesity therapy (1,2), which sees the GP as a coordinator between different treatment components.

2.5.5.1 STRENGTHS AND WEAKNESSES

Qualitative data from interviews allowed for deep insight into GPs' objectives in obesity management. However, committed and highly motivated GPs may be over-reported in our data. Additionally, none of the participating GPs was overweight or obese, which might have influenced results. In particular, GPs who are affected themselves may be less intent on playing a passive role in treatment. This question needs to be analysed in future research.

Qualitative studies are characterized by rich, in-depth topic exploration among small samples. Findings from this study are hypothesis-generating and provide essential leads for further research in this field of obesity management.

2.5.5.2 CONCLUSIONS

Our analysis showed that GPs aim at offering individually tailored, patient-centred therapy to obese patients but face several barriers. These can be combated by an increase of obesity-specific knowledge and training in communication skills as well as an integrative care combining the skills of several health experts such as psychologists and nurses. GPs as long-term supervisors of patients need to play a key role in an interdisciplinary working team. Their task is to coordinate prevention and treatment of obesity, using their advantage of having a long-term relationship with their patients.

REFERENCES

- (1) DAG- Evidenzbasierte Leitlinie. Prävention und Therapie der Adipositas. Deutsche Adipositas-Gesellschaft, Deutsche Diabetes-Gesellschaft, Deutsche Gesellschaft für Ernährung, Deutsche Gesellschaft für Ernährungsmedizin (Hrsg.), 2007. (Accessed January 17, 2010, at <http://www.adipositas-gesellschaft.de/daten/Adipositas-Leitlinie-2007.pdf>).
- (2) U.S. Preventive Services Task Force. Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. 2003
- (3) van Dijk L, Otters HB, Schuit AJ. Moderately overweight and obese patients in general practice: a population based survey. *BMC Family Practice* 2006;7:43.
- (4) Bergmann E, Kalcklösch M, Tiemann F. Inanspruchnahme des Gesundheitswesens. *Bundesgesundheitsbl - Gesundheitsforsch - Gesundheitsschutz* 2005;48:1365-1373.
- (5) Lyznicki JM, Young DC, Riggs JA, Davis RM. Obesity: assessment and management in primary care. *Am Fam Physician* 2001;63(11):2185-96.
- (6) Bocquier, A., Verger, P., Basdevant, A., Andreotti, G., Baretge, J., Villani, P. & Paraponaris, A. (2005). Overweight and obesity: knowledge, attitudes and practices of general practitioners in France. *Obesity Research*, 13, 787-795.
- (7) Huang J, Yu H, Marin E, Brock S, Carden D, Davis, T. Physicians' Weight Loss Counselling in Two Public Hospital Primary Care Clinics. *Acad Med* 2004;79(2):156-161.
- (8) Epstein L, Ogden J. A qualitative study of GPs' views of treating obesity. *Br J Gen Pract.* 2005;55(519):750-4.
- (9) Ogden J, Bandara I, Cohen H, Farmer D, Hardie J, Minas H, Moore J, Qureshi S, Walter F, Whitehead MA. General practitioners' and patients' models of obesity: whose problem is it? *Patient Educ Couns.* 2001;44(3):227-33.
- (10) Sonntag U, Esch T, Hagen von L, Renneberg B, Braun V, Heintze C. Locus of control, self-efficacy and attribution tendencies in obese patients-Implications for primary care consultations. *Med Sci Mon* 2010 16(7):CR330-335
- (11) Teachman BA, Brownell KD. Implicit anti-fat bias among health professionals: is anyone immune? *Int J Obes* 2001;25:1525-1531.
- (12) Foster GD, Wadden TA, Makris AP, Davidson D, Sanderson RS, Allison DB, Kessler A. Primary care physicians' attitude about obesity and its treatment. *Obes Res* 2003;11:1168-1177.
- (13) Loureiro ML, Nayga RM. Obesity, weight loss, and physician's advice. *Soc Sci Med* 2006;62(10):2458-68.

- (14) Wadden TA, Anderson DA, Foster GD, Bennett A, Steinberg C, Sarwer DB. Obese women's perceptions of their physicians' weight management attitudes and practices. *Arch Fam Med*. 2000;9(9):854-60.
- (15) Ely AC, Befort C, Banitt A, Gibson C, Sullivan D. A qualitative assessment of weight control among rural Kansas women. *J Nutr Edu Behav* 2009;41(3):201-11.
- (16) Sahlan S, Wollny A, Brockmann S, Fuchs A, Altiner A. Reducing unnecessary prescriptions of antibiotics for acute cough: adaptation of a leaflet aimed at Turkish immigrants in Germany. *BMC Fam Pract* 2008;9:57
- (17) Hollaus PH, Pucher I, Wilfing G, Wurnig WN, Pridun NS. Preoperative attitudes, fears and expectations of non-small cell lung cancer patients. *Interact Cardiovasc Thorac Surg* 2003 2(2):206-9
- (18) Mayring P. *Qualitative Inhaltsanalyse. Grundlagen und Techniken* [Content analysis. Introduction and methodology]. 6 ed. Weinheim: Deutscher Studienverlag, 1997.
- (19) Visser F, Hiddink G, Koelen M, van Binsbergen J, Tobi H, van Woerkum C. Longitudinal changes in GPs' task perceptions, self-efficacy, barriers and practices of nutrition education and treatment of overweight Family Practice 2008; 25: i105–i111.
- (20) Rollnick S, Miller WR, Butler C.C. *Motivational Interviewing in health care. Helping patients change behaviour*. New York: Guilford Press, 2008.
- (21) Pollak KI, Ostbyte T, Alexander SC, Gradison M, Bastian LA, Brouwer RJ, Lyna P. Empathy goes a long way in weight loss discussions. *J Fam Pract* 2007;56(12):1031-6.
- (22) Schwartz RP, Hamre R, Dietz WH, Wasserman RC, Slora EJ, Myers EF, Sullivan S, Rockett H, Thoma KA, Dumitru G, Resnicow KA. Office-based motivational interviewing to prevent childhood obesity: a feasibility study. *Arch Pediatr Adolesc Med* 2007;161(5):495-501.
- (23) Grief SN, Talamayan KS. Preventing obesity in the primary care setting. *Prim Care* 2008;35(4):625-43.
- (24) Heintze C, Metz U, Hahn D, Niewöhner J, Schwantes U, Wiesner J, Braun V. Counselling overweight in primary care: An analysis of patient- physician encounters. *Patient Educ Couns* 2010 Jul;80(1):71-5.
- (25) Sonntag U, Henkel J, Renneberg B, Bockelbrink, Braun V, Heintze C. Counselling overweight patients: analysis of preventive encounters in primary care *Int J Qual Health Care* doi:10.1093/intqhc/mzq060.
- (26) Scott JG, Cohen D, DiCicco-Bloom B, Orzano AJ, Gregory P, Flocke SA, Maxwell L, Crabtree B. Speaking of weight: how patients and primary care clinicians initiate weight loss counselling. *Prev Med* 2004;38(6):819-27.
- (27) Tsai AG, Wadden TA. Treatment of obesity in primary care practice in the United States: a systematic review. *J Gen Intern Med* 2009;24(9):1073-9.

3 GENERAL DISCUSSION

The aim of the present dissertation is to investigate GPs' care of overweight and obese patients participating in the Check-up 35 program. The five presented studies examine different aspects of primary care offered to those concerned. In the following section, results are briefly summarized, with a special focus on GPs' guideline adherence in obesity management. Deficiencies and potentials in existing care are identified, focusing in particular on the integration of concepts of health psychology in successful treatments of those affected as well as on GP-patient interaction as a key factor for success. Implications for prospective directions in primary care, such as integrative care for obesity management, are presented. Finally, research limitations and future directions are discussed.

3.1 SYNTHESIS OF RESULTS

Studies 1 and 2 aimed at characterizing the overweight and obese patients who participated in Check-up 35. It is shown that the patients perceive more stress and show lower mental and physical quality of life compared to a normal weight control group. Age, social status, and BMI are predictors for physical quality of life. Deficits in mental quality of life increase with age.

In the three dimensions of health-related locus of control – internality, social externality, and fatalistic externality – as well as in terms of general self-efficacy, the patients do not show any deviation compared to the normal population. Behavior-related causes for overweight and obesity are most frequently cited by patients, but patients with a BMI above 30 kg/m² are significantly more likely to blame their genes for their elevated body weight.

Study 3 analyzes counseling sessions during Check-up 35s with overweight and obese patients and examines how patients' characteristics influence these consultations. The Check-up 35 consultation lasted an average of 8.5 minutes; however, length varied enormously between doctors (range 1.5-32 minutes). Higher BMI correlates with significantly longer counseling sessions. Contrary to our hypothesis that patient characteristics play a large part in influencing the content of the consultations, physicians'

characteristics (personality and gender) play the largest role in predicting whether cardiovascular risk factors as well as topics concerning nutritional and physical activity will be touched upon. The combination of physician and patient gender affects the length of the consultation. Consultation between women lasted significantly longer compared to other gender- dyads. Female gender of GP acts as a predictor for more lifestyle-related elements. Overall, the Check-up 35 is used only in small part to counsel patients on excess weight; above all, male doctors were more likely to neglect lifestyle counseling and concentrate instead on medical themes such as laboratory parameters. Female physicians, on the other hand, focus more on strategies to lose weight, such as physical activity promotion and nutritional alterations.

The results of study 4 reveal further deficits in GPs' weight counseling. Physicians rarely involve affected patients in their therapy decisions, although again large differences between physicians were found. For GPs, female gender serves as a predictor for significantly more involvement of the patient in treatment decisions. All in all, motivational interviewing techniques are rarely used; however, this also depends greatly upon the physician's personality. For patients with a BMI > 30 kg/m², GPs use motivational interviewing techniques much more often compared to patients showing a BMI < 30 kg/m².

Finally, study 5 aimed at identifying GPs' attitude to counseling overweight and obese patients. Qualitative analysis of interviews shows a differentiated pattern of medical and psycho-social intentions in overweight and obesity treatment. Overall, results show that GPs wanted to play a relatively passive role in treatment, which contrasted with patients' expectations of receiving support from them. GPs emphasize the importance of patients' motivation as a key goal of primary care consultations, but largely perceive their patients as little motivated to change health related behavior. As other research has corroborated, GPs are often frustrated and perceive their care as ineffective.

3.2 GPs' ADHERENCE TO GUIDELINES

Our analysis reveals that guidelines for obesity treatment are only partly implemented by GPs in Check-up 35 consultations.

Counseling sessions for patients with a BMI greater than 30 kg/m² are longer than for other patients. A finding that may indicate that this group of patients receives more intensive care, as suggested in the guidelines' recommendations. Physicians also place a stronger emphasis on fostering these patients' motivation to lose weight, as indicated by the increased use of MI techniques. Nonetheless, these more strongly affected patients are not counseled more often or more intensively on nutrition and physical activity. Objective health parameters such as BMI or existing cardiovascular diseases do not influence whether a patient was counseled more intensively regarding nutrition or physical activity, whereas the GP's personality is a main factor determining the content of the Check-up 35 consultations. Such individualized approaches can be a plus for the counseling process, but can easily become a problem if lifestyle counseling is rarely performed.

The type of counseling is largely influenced by the gender of the physician: male physicians' counseling sessions are shorter and more focused on medical facts, neglecting nutritional and physical activity as well as behavioral therapeutic aspects. Female doctors, in contrast, conduct longer counseling sessions, speak less about cardiovascular risk factors and more about nutrition, and – to a larger degree than their male colleagues – were able to foster shared decision making. At the same time, however, female physicians neglect to promote physical activity. Lurie, Margolis, McGovern, Mink and Slater (1997) report that female GPs focus more on preventive services and show a distinctive communication pattern (Roter, Hall & Aoki, 2002), particularly in conjunction with difficult lifestyle counseling. Preventive services and the related forms of communication for lifestyle counseling may change slightly when the increasing number of female medical students join the workforce, but still deficits in counseling will be present.

The importance of motivation in weight loss is emphasized not only in health psychological models, but is also in the guidelines for obesity treatment as an essential step towards behavior modification (DAG, 2007; Wiesemann, Barlet, Engeser, Kuth & Müller-Bühl, 2006; BDA, 2008; Whitlock et al., 2002; Pudel, 2001). Further treatments

relating to weight loss are only recommended if patient's position on weight loss is known (Wiesemann et al., 2006; Rossi et al., 1994). Our analysis shows that doctors only rarely directly ask about the patient's motivation. It is not clear whether doctors intuitively ascertain whether patients are motivated in the course of the consultation or if they avoid this question for fear challenging the relationship, fear of rejection or out of insecurity or helplessness (Fogelmann et al., 2003; Foster et al. 2003). Another reason may be that they simply forget to discuss weight issues with their patients. It is known that physicians often underestimate their patients' motivation (Befort et al., 2006); thus, direct questioning is highly recommended.

The results of our analysis show that only in a small minority of cases are concrete goals towards weight loss established, even though establishing goals is known to be an important factor in fostering success (Pudel, 2001).

Many consultations are characterized by physicians' underplaying the harm of excess weight, in which they avoid or only briefly touch upon the subject. This is also supported by our interview data regarding doctors' views. Not all doctors see treatment as necessary for overweight and obese people and would prefer a more passive role in treating them. According to physicians' statements (study 5) and in line with the guidelines, doctors assess necessity for treatment by evaluating BMI and presence of cardiovascular risk factors. This positive personal assessment is not supported by our analysis, however. As a solution, guidelines structuring preventive encounters could help to establish a minimal standard as to what needs to be discussed when counseling overweight and obese patients in primary care. Nevertheless, the individuality and variety of physicians' counseling styles should be maintained, given a high variability in patient characteristics.

In sum, our results point to GPs' low guideline adherence in the domain of obesity treatment.

3.3 TREATMENT IMPLICATIONS

The synopsis of the results of the studies reveals the complexity of GPs preventive treatment of overweight and obese patients. The overall low quality and – from a preventive viewpoint – deficient counseling by GPs is explained by certain barriers, including a low competency for this particular task (Kushner, 1995; Foster et al., 2003; Thuan & Avignon, 2005), underestimation of patient motivation for behavior change (Hebl & Xu, 2001; Befort et al., 2006), and a deficit in rewarding preventive care (Bocquier et al., 2005). The following sections focus on possible solutions for these deficits and barriers in overweight and obesity counseling.

3.3.1 INCORPORATION OF PSYCHOMETRICAL PATIENT CHARACTERISTICS INTO COUNSELING

The results of studies 1 and 2 show that overweight and obese patients in primary care express lower levels of health-related quality of life than do patients from a hospital setting (Wee, Davis & Hamel, 2008). This means that GPs should be particularly sensitive to psychological aspects. Mentioning aspects such as quality of life or stress has the potential to evoke intentions to change behavior. Above all, the perceived quality of life has a high subjective value for patients (Sherbourne, Sturm & Wells, 1999). But perceived stress is also a potentially modifiable variable that needs to be taken into consideration when planning intervention programs (Willet et al., 2002; Blumenthal et al., 2005; Stefano, Stefano & Esch, 2008; Esch & Stefano, 2007; Esch, Duckstein, & Braun, 2007; Michalsen et al., 2005). Patients with an elevated level of stress and a high BMI show two main risk factors for the development of cardiovascular diseases (Esch, Stefano, Fricchione & Benson, 2002; Merril & Aldana, 2008; Rosolova, Petrlova, Simon, Sifalda, & Sipova, 2008).

In particular, patients with a BMI > 30 kg/m², who objectively experience greater physical limitations, suffer more of stress and decreases in quality of life (study 1). Obesity guidelines recommend an intensive therapy for these patients. Behavior modification, which is necessary for weight loss, requires a large degree of confidence in one's own competencies and a developed self-efficacy. Thus, cognitions such as locus of control and attribution tendencies should be identified by GPs in order to be able to correctly intervene. GPs have the opportunity to intensify patients' beliefs in themselves and to

motivate change. Patients with a BMI > 30 kg/m², who often attribute their excess weight to genetic factors and see their behavior as playing a smaller part in their being overweight or obese, thus pose special challenges to physicians' communication behaviors. A further challenge is to identify and focus on topics relevant to patients. This is especially difficult because doctors and patients often emphasize different topics. E.g., physicians more often cite the medical consequences of excess weight, whereas patients see social restrictions as being more significant (Ogden et al., 2001; Ogden & Flanagan, 2008). An important need for action can be seen in sensitizing GPs to the different explanation models that vary between practitioners (victim-blaming) and patients (self-serving), which has wide-reaching effects on therapy. In order to be sufficiently motivated, patients must see a subjective benefit of an often difficult and complex behavior modification. Further analysis of the present encounters shows that doctors rarely ask directly about motivation for weight alteration; rather, they implicitly assume that patients have a motivation for change because of objective restrictions (Wiesner, 2009).

With the increase in lifestyle-associated diseases, specific continuing education courses on communication competencies are necessary and could improve physicians' perceptions of their competencies and also their skills in these fields over the long term. Evaluations of continuing medical education efforts show positive effects on clinician practices and patient outcomes (Davis et al., 1999). Even relatively brief physician training improves the delivery of prevention services (Ockene et al., 1995; Marcus, Goldstein & Jette, 1997).

Given the findings of both study 1 and 2, GPs should be aware of a cumulative risk for mental disorders in their overweight and obese patients. They should explore patients' perspectives on their weight and integrate these subjective norms into an individualized tailored therapy. This is the only way to achieve a long-term lifestyle modification. Improving doctors' knowledge about the bio-psycho-social context and the impact of overweight and obesity will positively influence the quality of care. Mental health parameters, not only physical restrictions, should be the starting point for treatment decisions and trigger patients' motivation.

The results of psychometrical characterization of the patients from studies 1 and 2 point to the necessity of a high degree of communication competencies for GPs. Above all, sensitive and empathetic ways of discussing the psychological and social limitations caused by excess weight, as well as methods of motivating behavior change, are required. Specific communication techniques that can support lifestyle consultation are presented in the following sections.

3.3.2 SHARED DECISION MAKING

A shift in medical thinking in recent decades has led to the concept of *shared decision making* (SDM) which is located on a continuum between the informative model and the traditional paternalistic approach of treating patients. Patients' involvement in decision making with respect to behavior changes offers important benefits: Patients who are actively involved in healthcare decisions have a greater sense of personal control (Lerman et al., 1990), which is an important factor for successful behavior change. Additionally, patient involvement in decisions promotes choices based on realistic expectations and patient values (Miller, 1998); these are important parameters of patient adherence (Donovan & Blake, 1992).

Former research on communication between doctors and patients has underlined the importance of agreement on the problem and a mutual understanding between both parties. According to Pendleton, Schofield, Tate & Havelock (1984), agreement upon the nature of the problem as well as the actions that should be taken to solve it is thus one of the central tasks of the physician-patient consultation. Thure von Uexkull (2002) coined the term "mutual reality" in this context. The degree of this agreement between both parties has been shown to correlate with the success of the treatment (Starfield et al., 1981; Bass et al., 1986). For instance, Befort et al. (2006) showed that physicians and patients estimate the negative health consequences of excess weight very differently. Moreover, it was shown that patients are satisfied when physicians and patients had the same „practice orientation“, that is, when they had similar concepts of the roles each party played in the consultation (Krupat et al., 2000).

Contrary to the assumption that SDM is more time-consuming, patient-centered approaches in which the patient and clinician mutually agree on specific changes may require less visit time than provider-centered approaches (Adams et al., 1998). Obtaining

a patient's active agreement before proceeding with further behavior counseling can prevent resistance.

Physicians who took part in the present study were in average 58 years old, which partially explains why SDM was seldom used in the consultations. Sensitization and training could benefit GPs by adding to their knowledge in the domain of overweight and obesity therapy. Younger physicians receive these concepts in their training.

3.3.3 MOTIVATIONAL INTERVIEWING

A successful counseling strategy with patients in terms of lifestyle changes is motivational interviewing (MI) (Miller 1983; Rollnick & Miller, 1995). MI is defined as a directive, client-centered counseling style for eliciting behavior change whose central goal is to help clients explore and resolve ambivalence. The counselor is intentionally directive in pursuing this goal (Rollnick, Miller & Butler, 2008). Motivational interviewing is an effective strategy to build motivation for change by reinforcing internal locus of control and self-efficacy. Several cardiovascular risk factors can be successfully modified using MI, e.g., BMI, cholesterol, and systolic blood pressure (Rubak, Sandbæk, Lauritzen & Christensen, 2005). It is found that even with short consultations of about 15 minutes, this approach has a positive effect on health outcomes. Motivational interviewing is particularly suitable for people who are currently not ready to stop unhealthy behavior, either because they are not fully aware of the problem, because they are trapped in their own ambivalence, or because they perceive themselves as incapable of changing their situation in a positive way (Rollnick, Miller & Butler, 2008). It is assumed that the latter is distinctive to obese patients. MI was found to improve weight loss, treatment adherence, and attrition rates in group behavioral weight loss (DiMarco, Klein, Clark & Wilson, 2009). In line with our data, Pollak et al. (2007) found that GPs show a low adherence to this technique in overweight and obesity management.

With respect to MI, the Check-up 35 format is not sufficient; continual contacts with a counselor are necessary in order to reach long-term goals. The discussion is still open as to whether and how GPs could and should integrate these strategies into their daily practice and whether long-term care and counseling regarding patients' motivation could also be delegated to other professions within a multidisciplinary team. Results from Rubak et al. (2005) indicated success rates for MI counseling that are not dependent upon

the person of the counselor. E.g., if trained practice nurses were able to offer MI-based lifestyle counseling, this could in large part relieve physicians' workload. At the same time, it is also important that GPs are trained in the usage of these techniques, given that GPs are the first contact person for overweight and obese patients' and the coordinators for multidisciplinary care. Thus, GPs play an important role in developing and maintaining motivation.

3.3.4 THE 5A CONCEPT

A counseling strategy that takes heed of individual readiness to change is described in the so called 5A concept (Whitlock et al., 2002). The five A's model (assess, advise, agree, assist, arrange) was originally developed by the National Cancer Institute to guide physician intervention in smoking cessation (Glynn & Manley, 1989). The five A's model has been applied in brief primary care interventions for a variety of health behaviors (Goldstein, DePue & Kazuira, 1998; Ockene et al., 1995; Pinto, Lynn, Marcus, DePue & Goldstein, 2001). Clinicians often lack the knowledge, skills, and support systems to quickly and easily provide a range of different behavioral counseling interventions, particularly in the limited time available to them (Thompson, 1996; Timmerman, Reifsnider & Allan, 2000; American College, 1998). These barriers provide an important rationale for proposing a consistent overall approach – such as the five A's' (Whitlock et al., 2002) – for describing behavioral counseling interventions in several settings, e.g., in GPs' care and for several risk factors. The 5A's cover aspects of SDM and MI in a usable way for daily counseling in a GP's practice.

This technique differentiates five aspects of risk counseling on behavioral modification.

Assess

“Assess” stands for asking about and assessing behavioral health risks. Because behavioral risks are largely invisible and rarely the main reason for seeking clinical care, explicit assessment systems should be used (Whitlock et al., 2002). This can help identify patients at risk and coordinate suitable matches between individual needs and treatment factors (Brownell & Wadden, 1992). Ideal assessment strategies are feasible, brief, and able to be interpreted or scored easily and accurately, while also enhancing intervention appropriateness and effectiveness (Newell, Girgis, Sanson-Fisher & Savolainen, 1999). Assessment can range from a few focused questions to more comprehensive tools, such

as health-risk appraisal (HRA). Assessing overweight and obesity and its accompanying physiological and psychological conditions requires an extensive assessment strategy.

Advice

“Advice” means giving clear, specific, and personalized behavior change advice, including information about personal health hazards and benefits. As seen in MI, advice is most powerful when personalized by specifically linking the behavior change to the patient’s health concerns, past experiences, or family or social situations (Miller & Rollnick, 1991). Kottke, Edwards and Hagen (1999) and Kreuter, Chheda and Bull (2000) argue that clinician advice should primarily give the cue to action, while other health professionals and media provide the details. Following this argumentation, clinicians are a uniquely influential catalyst for patient behavioral change (Thompson, 1996) and need to be supported by a coordinated inter-professional team in order to accomplish and maintain that change. How the clinician’s advice is delivered is significant — a warm, empathetic, and non-judgmental style elicits greater cooperation and less resistance (Emmons & Rollnick, 2001; Miller & Rollnick, 1991). Solberg and Kottke (1998) recommend a respectful, individualized approach, that first considers a patient's interest in change before warning about health risks or trying to convince the patient to take action. Whitlock et al. (2002) ask clinicians to acknowledge patients’ previous success in making changes because this boosts patients’ confidence. Advice can be compact and short (30 to 60 seconds), particularly when coupled with additional assistance (Whitlock et al., 2002).

Agree

“Agree” means that doctor and patient select appropriate treatment goals and methods based on the patient’s interest in changing the behavior and willingness to do so. The importance of collaboration in care and both patient involvement and agreement in a course of action is found to be of particular value for treatment success (Little et al., 2001). Treatment decisions have to be based on clinician–patient agreement after considering treatment options, consequences, and patient preferences (Frosch & Kaplan, 1999). Some strategies aim at fostering an agreement with patients require only a few brief questions (Whitlock et al., 2002) that can easily assess a person’s motivation and confidence to change a particular behavior and that quickly identify the most promising future directions (Rollnick, Mason & Butler, 1999). Collaboration may engage even a

minimally interested patient in a non-threatening way that may also increase knowledge, self-confidence, and motivation.

Assist

“Assist” means using behavior-changing techniques that support the patient in actively achieving goals by fostering the skills, confidence, and social or environmental supports for behavior change, supplemented with additional medical treatments when appropriate. When providing assistance, the clinician or others offer additional treatment to address barriers to change, increase the patient’s motivation and self-help skills, and/or help the patient secure the needed support for successful behavioral change. Effective primary care interventions seek to teach self-management and cultivate problem-solving or coping skills (Goldstein, DePue & Kazuira, 1998). As described in the MI concept, those not ready to commit to a specific behavior change in the near future often benefit from assistance strategies that explore ambivalence and enhance motivation (Emmons & Rollnick, 2001). Additional assistance does not necessarily have to be offered by the GP alone. GPs may instead provide assistance through referral to other healthcare providers. Assistance techniques vary according to the individual patient’s behavior and needs but include practical counseling (problem-solving skills training) to replace the problem behavior with new behaviors and to tackle environmental and psychological barriers to change. Other effective behavior change techniques include modeling and behavior rehearsal, contingency contracting, stimulus control, stress-management training, and the use of self-monitoring and self-reward (Bandura, 1986).

Arrange

“Arrange” means scheduling follow-up appointments (in person or by telephone) to provide ongoing support and to adjust the treatment plan as needed, including referral to more intensive or specialized treatment. Arranging follow-up appointments challenges to re-think behavioral risk factors as chronic problems that change over time (Glasgow, Orleans, Wagner, Curry & Solberg, 2001). No matter how intensive the initial assistance, some form of routine follow-up assessment and support is generally necessary in behavior change interventions. Simply informing patients that follow-up will occur seems to be a powerful motivating factor (Lichtenstein & Glasgow, 1992) as is communicating that the behavior change is important and that follow-up assistance will be available if

needed. In general, follow-up is best scheduled within a relatively short time period. After initial intervention follow-up, future contacts are often spaced at successively longer intervals to provide needed support and continuity in a gradually reduced manner (Whitlock et al., 2002).

Counseling that follows the 5A concept seems to fit the needs of GPs in providing overweight and obesity therapy. In particular, long-term care that incorporates different focuses of counseling offered to those affected is a promising structure. In the first of the A's, "assess", aspects are mentioned that should unequivocally be part of every Check-up 35 consultation. Giving advice regarding behavior change is also a part of Check-up 35. Concrete health goals can be discussed but cannot always be achieved within the limits of the Check-up 35 consultation. For continual counseling according to the 5A concept, regular close physician-patient contacts are necessary that go above and beyond a single Check-up 35.

3.3.5 IMPLICATIONS OF MODELS OF HEALTH BEHAVIOR

The different phases of behavior modification, as they are described e.g., in the HAPA model (Schwarzer, 1992; see also section 1.3.1) require different communication techniques that strengthen motivation. In consultations patients' risk perception and individual outcome expectancies have to be discussed to generate motivation. Seeing personal behavior as connected with health outcomes is a necessary first step in behavior modification. If patient motivation towards behavior change is lacking, it may be necessary to use MI elements to resolve ambivalence. After relapses it may be necessary to reinforce self-efficacy and use concrete strategies. The intention to change a behavior depends in large part on how deeply a person trusts his or her abilities and competencies and how strongly someone believes to be in control of his or her habits. Self-efficacy is important in all phases and GPs have to be aware of its impact on behavior change. Our analysis highlights the fact that when physicians discuss overweight and obesity, they mostly talk about laboratory parameters and limit themselves to explaining the medical risk factors. As shown, however, risk perception plays a role in behavior modification only in the intention-building phase at the beginning. At later stages, this becomes less important, whereas self-efficacy remains important in all phases, meaning that its reinforcement should be one of the focuses of counseling.

Establishing behavioral intentions is known to be a necessary step to behavior modification; however, only 20-30% of the variability of actual behaviors is explained by it. Thus, even when people have established intentions, they often fail in their practical implementation (Orbell & Sheeran, 1998).

The establishment of intentions in writing has a positive effect on their translation into actual behavior. This has been seen e.g., in smoking behavior (Dijkstra, De Vries, Roijackers & Breukelen, 1998). Although it needs to be tested how useful this strategy is in overweight and obesity therapy, it would be a simple, well-adaptable variant that promises to help. In the physician-patient-contacts that we analyzed, goals were rarely established and never done so in written form.

In the “pre-action phase” of the HAPA GPs could support patients in defining concrete plans to modify behavior; the when, where, and how regarding the treatment has to be established; and alternative ideas of how to act need to be generated. In the “action-phase” patients can be supported in providing techniques which protect their action and intention from negative influences. Strategies that do this are the ability to delay gratification (Mischel, Shoda & Peake, 1988), setting a hierarchy of long-term goals into reachable short-term goals, and constant emotional and attention regulation (Kuhl, 1996). These strategies are helpful until the new behavior has become a habit. In the “post-action phase” patients explain and evaluate results of behavior change and GPs can foster internal controllable attributions for success which also increases self-efficacy.

The HAPA model could be used as heuristics for GPs' preventive consultations and illustrate mechanisms occurring when individuals become motivated to change their habits, when they start and maintain a habit, and when they attempt to withstand temptation or recuperate from relapses.

Integrating implications of phase-adapted counseling as advocated in the HAPA and 5A concept can be a meaningful counseling strategy for prevention of lifestyle-associated diseases in general practice. To determine the exact method of how this strategy works, secondary analyses of its empirical effectiveness are necessary.

Another health psychological aspect that can be easily adapted to the general practice consultation can be gleaned from the *theory of trying* (Bagozzi & Warshaw, 1999). The authors assume that unsuccessful trials of behavior modification increase the probability

of future success. People learn from their mistakes, and the more unsuccessful trials they experience, the more easily patients are able to formulate concrete plans to establish a specific behavior. The relapse risk also decreases. GPs should thus discuss previous attempts at weight reduction in their consultations.

Integrating health psychological aspects into obesity therapy necessitates that physicians and psychologists in outpatient treatment liaise closely. Interdisciplinary obesity centers are a promising opportunity to improve treatment quality.

3.3.6 USE OF NEW MEDIA FOR OVERWEIGHT AND OBESITY THERAPY

Recent advances in health communications and the use of computer technology, e.g., interactive computer programs coupled with the capacity for individually tailored output can track individual progress and adjust health promotion strategies to respond to the individual's preferences and rate of progress and prolong contact with the patient, while reducing the services that must be provided directly by clinical staff (Krueter, Farrell, Olevitch & Brennan, 2000; Glasgow, Orleans, Wagner, Curry & Solberg, 2001). These computer-based communication aids have boosted treatment outcomes in comparison to standard "one-size-fits-all" interventions in several behavioral areas (e.g., smoking cessation and diet modification), with the greatest benefits often seen in the low-income population (Campbell et al., 1994; Skinner, Campbell, Rimer, Curry & Prochaska, 1999; Strecher et al., 1994). Although some of these technologies are relatively new and still under evaluation, advances in information and communication technologies hold great promise for enhancing intervention efficiency, in particular for ongoing follow-up and support, which is of particular importance in overweight and obesity treatment.

3.3.7 STRUCTURAL AND POLITICAL SOLUTIONS

Lifestyle-associated diseases such as obesity clearly indicate that demands placed on physicians are changing from cure to care. These aspects have to be integrated early on in medical training and should be taught to the next generation of physicians as essential. For GPs above all, the challenges regarding prevention are continually increasing. However, Germany faces an enormous shortage of GPs in the future. Primary medical care in rural territories is already deficient at this time and the trend is increasing with the increasing in population aging. Political attempts to improve general medicine are only

slowly taking effect, and models of GP-centered care are only being implemented tentatively.

The scope of Check-up 35 is strongly criticized by physicians (Regus et al., 2010), and the analysis outlined in previous sections shows that the Check-up 35 offers insufficient possibilities in overweight and obesity treatment. With respect to the counseling sessions, structured help and instruction for physicians are lacking. This explains in part the huge variance that is identified in the structure, length, and way in which Check-up 35 consultations are held. Our own analysis of consultations shows that some physicians use the Check-up 35 for individual weight counseling and consider individual patients' conditions in their consultations (Heintze et al., 2010). Many physicians, in contrast, focus on standard activities such as conversing about laboratory results and avoiding a verbal altercation on issues relevant to the patient. The Check-up 35 in its existing form is insufficient for implementing long-term changes in lifestyle. Only continuous and integrative patient-centered care can trigger patients' motivation and result in long-term effects.

Whitlock et al. (2002) stated that behavioral counseling interventions address complex behaviors that are integral to daily living; vary in intensity and scope from patient to patient; require repeated action, but can be modified over time to achieve health improvements; and are strongly influenced by multiple contexts (family, peers, work, school, and community). Counseling can be seen as a cooperative model of working together that demands active participation from both the patient and the clinician and aims at facilitating the patient's independent initiative and ability to cope (Nupponen, 1998). Engaging patients actively in the self-management practices they require is a central component of effective behavior counseling interventions (Whitlock et al., 2002).

Physicians alone cannot fulfill the multifaceted requirements for overweight and obesity therapy. Whereas in some countries such as the Netherlands and Great Britain parts of physicians' workloads is assumed by practice nurses, discussion of this option is at a relatively early stage in Germany. On a national level, different types of pilot studies show positive effects of extending the competencies of medical assistants (MA) on patients' health. This job enrichment into the areas of patient-care, consultations, and prevention

has been a part of the established education curriculum for MAs since August 2006. MAs are able to use these competencies in disease management programs, for instance. The increase in chronic diseases together with a primary care shortage necessitates further qualification of MAs.

Physicians' counseling is only partially delegable, however, since the often long-standing physician-patient relationship plays an important role (Felder-Puig, Turk, Guba & Wild, 2006). According to a Toronto consensus conference on doctor–patient communication (Simpson et al., 1991), effective communication between doctor and patient is a central function that cannot be delegated.

On the other hand, practice nurses or medical assistants also have a close and long-standing relationship with patients in the practice. Counseling and treatment require numerous interventions to achieve the complex lifestyle changes that are necessary in overweight and obesity. Thus, a comprehensive treatment that integrates different professions is needed (Kottke, Edwards & Hagen, 1999; Dickey, Gemson & Carney, 1999; Glasgow, Whitlock, Eakin & Lichtenstein, 2000). E.g., regularly weighing overweight and obese patients could be performed by practice nurses without contact to physicians, whereas the decision to start taking drugs for weight loss would only be made by physicians. In order to relieve doctors from some of their heavy workload, a more team-oriented solution would be ideal. Through delegating physicians' tasks and employing MA-specific competencies and resources, the prevention of lifestyle-associated diseases such as obesity can be optimized. Tonstad, Soderblom and Sandvik (2007) showed significant improvement in the symptoms of metabolic syndrome patients by regularly scheduling lifestyle consultations containing concrete individual recommendations that are carried out by nurses. Interventions that are carried out by nurses achieve a significantly higher improvement in blood pressure values in hypertension patients than do physicians' interventions (Wood et al., 2008; Pheley et al., 1995; Fuchs et al., 1993; Wollard, Burke & Beilin, 2003).

The job of GPs in comprehensive inter-professionally-structured obesity therapy would, in spite of delegated specific tasks, still be very ample. The role of GPs as central coordinators, as specified in the BDA-Guidelines, could be realized. GPs' efforts are

enhanced when the entire healthcare team takes on appropriate and complementary roles in delivering efficient interventions (Kottke, Edwards & Hagen, 1999; Hollis, Lichtenstein, Vogt, Stevens & Biglan, 1993; Burns, 2000).

3.4 LIMITATIONS AND FUTURE DIRECTIONS

There are several methodological limitations of this research project as mentioned in the individual studies. The results of studies 1 and 2 mainly rely on self-reported data. It is therefore likely that highly motivated patients are over-represented. This over-representation could partially explain why scores were mostly average in observed health-related cognitions (study 2). It is also known that actual BMIs are even higher than self-reported data indicate (Rowland, 1990). Women in particular tend to overestimate their height and underestimate their weight. Given that two thirds of our sample is female, gender thus has to be regarded as having an influence on results. Because the results reported in studies 1 and 2 are based on cross-sectional data, no inferences can be drawn regarding causality of relations reported between dependent (perceived stress, health-related quality of life, health-related locus of control, self-efficacy, and attribution tendencies) and independent variables (e.g., BMI, age).

Studies 3 and 4 analyzing GP-patient communications are limited by the small sample size and a lack of variance in several variables. On the other hand, a major strength of these two studies is that objective data (audio-recorded consultations) were used and thus allowed an insight into a field of research that is difficult to access. Another strength can be seen in the use of three standardized and well-validated assessment instruments (RIAS, BECCI, OPTION). However, when interpreting results of studies 3 and 4, it needs to be taken into account that GP participation in this study was voluntary, and it is likely that those who took part were especially interested in improving their communication skills.

When interpreting data and results of study 5, committed and motivated GPs may possibly be over-represented. Additionally, social desirability of GPs' responses may have influenced interview data.

A significant strength of this study is the integration of qualitative and quantitative methods of data generation and evaluation. The results mark a significant contribution to the description of present care offered to overweight and obese patients in primary practice and enable the deduction of necessary measures.

Future research must evaluate the efficacy and consequences of the continuing professional training of GPs, necessitated by changing occupational demands. Appropriate concepts for sensitization of patients' needs and training in specific

communication techniques need to be developed and tested. Specifically, implications of health psychology – such as the need for a phase-based individual consultation according to the HAPA (Schwarzer, 1992) staged in usable consultations strategies, e.g., the 5A concept – need to be integrated into teaching concepts. Another important area for future research should be the efficacy of interdisciplinary working teams in the domain of overweight and obesity care. The potential solutions proposed here, such as stronger integration of practice nurses in lifestyle counseling and the consequent changes in the physicians' tasks, need to be evaluated empirically before they can be implemented into regular care.

4 SUMMARY

Overweight and obesity are two central issues in health care worldwide. The WHO (1998) defines obesity as a chronic disease with reduced quality of life and high morbidity and mortality risk that requires long-term care. In Germany two thirds of men and half of women over 18 years are overweight (BMI ≥ 25 kg/m²), while 17% of males and 20% of females are obese (BMI ≥ 30 kg/m²), (Mensink, Lampert & Bergmann, 2005; Mensink & Bergmann, 1999).

Guidelines for the treatment of obesity recommend a therapy combining nutritional alterations, an increase of physical activity, and behavior therapy. GPs should play a central role in long-term treatment of overweight and obese patients (DAG, 2007; BDA, 2008).

Aim of the present dissertation is to investigate GPs' care of overweight and obese patients. To this end, quantitative and qualitative approaches for data collection and analysis were used. The current care is compared to targets of guidelines. Focus of this research is the analysis and assessment of GPs' consultations with affected patients. Additionally, selected patient characteristics were examined and guided interviews were conducted with GPs. This dissertation consists of five studies, that were conducted in the framework of a BMBF-project (01GWS053).

Results of study 1 ("Perception of stress and quality of life in overweight and obese people: Implications for preventive consultancies in primary care") show that overweight and obese patients perceive more stress and show lower mental and physical quality of life compared to a normal weight control group. Age, social status, and BMI are predictors for mental quality of life. Deficits in mental quality of life increase with age.

The second study ("Locus of control, self-efficacy and attribution tendencies in obese patients: Implications for primary care consultations") also aims at characterizing the sample. In the three dimensions of health-related locus of control – internality, social externality, and fatalistic externality – as well as in terms of general self-efficacy, the patients do not show any variances compared to the normal population. Behavior-related causes for overweight and obesity are most frequently cited by patients, but patients with

a BMI above 30 kg/m² are significantly more likely to blame their genes for their elevated body weight.

These results indicate several restrictions in mental health experienced by overweight and obese patients. Decreased attribution to behavioral causes in obese patients increases challenges facing GPs when counseling affected patients.

The third study (“Counseling overweight patients: Analysis of preventive encounters in primary care”) analyzes Check-up 35 consultations between GPs and overweight and obese patients, with a focus on the actual topics that patients and GPs discussed. Additionally, it is examined to what extent patients’ characteristics influence consultations. The Check-up 35 consultation lasted an average of 8.5 minutes; however, length varied enormously between doctors (range 1.5 – 32 minutes). Higher BMI leads to significantly longer counseling sessions. Contrary to our hypothesis that patient characteristics play a large part in influencing the content of the consultations, physicians’ characteristics (personality and gender) play the largest role in predicting whether cardiovascular risk factors as well as topics concerning nutritional and physical activity will be touched upon. The combination of physician and patient gender affects the length of the consultation. Consultation between women last significantly longer compared to other gender-dyads. Female gender of GP acts as a predictor for more lifestyle-related elements. Overall, male doctors are more likely to neglect lifestyle counseling and concentrate instead on medical themes such as laboratory parameters. Female physicians, on the other hand, focus more on strategies to lose weight, such as physical activity promotion and nutritional alterations.

Results of the fourth study (“Obesity counseling in primary care: Motivational interviewing and shared decision making”) reveal further deficits in GPs’ weight counseling. Physicians rarely involve affected patients in their therapy decisions, although again large differences between GPs were found. For GPs, female gender serves as a predictor for significantly more involvement of the patient in treatment decisions. All in all, motivational interviewing techniques are rarely used; however, this also depends greatly upon the physician's personality. For patients with a BMI > 30 kg/m², GPs use motivational interviewing techniques much more often compared to consultations with patients showing a BMI < 30 kg/m².

The fifth study (“GPs’ objectives in counseling obesity: a qualitative analysis”) aims at identifying GPs’ attitude to counseling overweight and obese patients. Qualitative analysis of interviews shows a differentiated pattern of medical and psycho-social intentions in overweight and obesity treatment. Overall, it is seen that GPs want to play a relatively passive role in treatment, which contrasts with patients’ expectations of receiving support from them (Ogden & Flanagan, 2008). GPs emphasize the importance of patients’ motivation as a key goal of primary care consultations, but largely perceive their patients as little motivated. As other research has corroborated, GPs are often frustrated and perceive their care as ineffective.

The results of this dissertation identify strengths and weaknesses of GPs’ care for affected patients and in general point to a low guideline adherence of GPs when treating obesity. Overall, GPs’ characteristics and in particular their gender determine the consultation process. Physical patients’ parameters such as the BMI do not influence consultations.

Taking these findings into account and considering identified deficits in primary care for overweight and obese patients, it appears essential that GPs be trained in the use of motivational interviewing and concepts such as shared decision making.

A key means of increasing patients’ motivation can be to focus consultations on topics relevant to patients, such as stress or quality of life. Predetermined strategies for conducting a counseling session with overweight or obese patients can simplify the task and define a minimal standard for consultations. Apart from specified topics and defined counseling techniques, health psychological concepts that explain health behavior change (e.g., HAPA) need to be integrated into GPs’ counseling routine. Training manuals that are tailored to GPs’ needs and the complexity of their tasks in the domain of overweight and obesity care also have to be developed.

Beyond that, health political and structural changes in overweight and obesity care are recommended. GPs have to play a key role in an interdisciplinary team and coordinate and control care for affected patients. In particular, medical assistants, who often also have a close and long-standing relationship with patients in the practice, could be more involved in the care of overweight and obese patients.

Future research must evaluate model projects for integrative care of overweight and obese patients, identify delegable medical tasks, and evaluate empirically the efficacy of

interdisciplinary working teams in the domain of overweight and obesity care. Only then can these concepts be implemented into regular care.

REFERENCES

- Abraham, C. & Sheeran, P. (2000). Understanding and changing health behaviour: From health beliefs to self- regulation. In P. Norman, C. Abraham & M. Connor (Eds.) *Understanding and changing health behaviour* (pp.3-24). Amsterdam: Harword.
- Adolfsson, B., Andersson, I., Elofsson, S., Rössner, S. & Undén, A.L. (2005). Locus of control and weight reduction. *Patient Education and Counselling*, 56, 55-61.
- Ajzen, I (1991). The theory of planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Allison, D.B. & Engel, C.N. (1995). Predicting treatment outcome: why have we been so unsuccessful? In D.A. Allison & F.X. Pi- Sunyer FX (Eds). *Obesity treatment: Establishing goals, improving outcomes, and reviewing the research agenda*, pp.191-198. New York: Plenum Press.
- American College of Preventive Medicine. (1998). *National Prevention in Primary Care Study*. Washington, DC.
- Bagozzi, R.P. & Warshaw, P.R. (1990). Trying to consume. *Journal of Consumer Research*, 17, 127-140.
- Baker, A., Richmond, R., Castle, D., Kulkarni, J., Kay- Lambkin, F., Skrouge, R., Filia, S. & Lewin, T.J. (2009). Coronary artery disease risk reduction intervention among overweight smokers with a psychotic disorder: pilot trial. *Australian and New Zealand Journal of Psychiatry*, 43(2), 129-135.
- Bandura, A. (1977). *Social Learning Theory*. New York: General Learning Press.
- Bandura, A. (1986). *Social foundations of thought and action: a social cognitive theory*. Prentice Hall: Englewood Cliffs, NJ.
- Bandura, A. (1997). *Self- efficacy. The exercise of control*. New York: Freeman.
- Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, 31 (2), 143- 164.
- Bass, M.J., Buck, C., Turner, L., Dickie, G., Pratt, G. & Robinson, HC. (1986). The physician's actions and the outcome of illness in family practice. *Journal of Family Practice*, 23, 43-47.
- Baum, E., Piotrowski, T., Donner-Banzhoff, N., Jäkle, C., Keller, S., Miko, M., Sarafowa, A., Jörgens, V. & Basler, H.-D. (1999). Die Einschätzung verhaltensbezogener Risikofaktoren beim "Check-up 35". *Zeitschrift für Allgemeinmedizin*, 75, 674-678.

- BDA (2002). Bund deutscher Hausärzte (German GPs association). Manual Adipositas. <http://www.ifap.de/bda-manuale/adipositas/einleitung/index.html>. (Accessed 27.04.2008) *Journal of Obesity and Related Metabolic Disorders*,
- Becker, M.E. (1974). *The health belief model and personal health behaviour*. Thorofare ,NJ:Slack.
- Befort, C.A., Greiner, K.A., Hall, S., Pulvers, K.M., Nollen, N.L., Charbonneau, A., Kaur, H., & Ahluwalia, J.S. (2006). Weight-related perceptions and expectations among patients and their physicians: How well do physicians judge their patients' motivation to lose weight? *Journal of General Internal Medicine*, 21, 1086-1090.
- Beliard, D., Kirschenbaum, D.S. & Fitzgibbon, M.L. (1992). Evaluation of an intensive weight control program using a priori criteria to determine outcome, *International* 16, 505-517.
- Bergmann, E., Kalcklösch, M. & Tiemann, F. (2005). Inanspruchnahme des Gesundheitswesens. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 48, 1365-1373.
- Björnberg, A., Garrofé, B.C. & Lindblad, S. (2009). *Euro Health Consumer Index*. Health Consumer Powerhouse AB.
- Blumenthal, J.A., Sherwood, A., Babyak, M.A., Watkins, L.L., Waugh, R. Geogiades, A., Bacon S.L., Hayano, J., Coleman, E. & Hinderliter, A. (2005). Effects of exercise and stress management training on markers of cardiovascular risk in patients with ischemic heart disease: a randomized controlled trial. *Journal of the American Medical Association*, 293(13), 1626–1634.
- Brownell, K.D. & Wadden, T.A. (1992). Etiology and treatment of obesity. Understanding a serious, prevalent and refractory disorder. *Journal of Consulting and Clinical Psychology*, 60, 505–517.
- Bocquier, A., Verger, P., Basdevant, A., Andreotti, G., Baretge, J., Villani, P. & Paraponaris, A. (2005). Overweight and obesity: knowledge, attitudes and practices of general practitioners in France. *Obesity Research*, 13, 787-795.
- Bullinger, M., Morfeld, M., Kohlmann, T., Nantke, J., van den, B.H., Dodt, B. et al. (2003). SF-36 Health Survey in Rehabilitation Research. Findings from the North German Network for Rehabilitation Research, NVRF, within the rehabilitation research funding program. *Die Rehabilitation*, 42(4), 218-225.
- Bundesausschuss der Ärzte und Krankenkassen (2005). (National Committee of SHI-Physicians and Sickness Funds). *Richtlinien des Bundesausschusses der Ärzte und Krankenkassen über die Gesundheitsuntersuchung zur Früherkennung von Krankheiten*. 1- 5.

- Burns, D.M. (2000). Smoking cessation: recent indicators of what's working at a population level. In U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute *National Cancer Institute. Population based smoking cessation: proceedings of a conference on what works to influence cessation in the general population* (pp. 1-24). Bethesda: MD.
- Burns, C.M, Tijhuis, M.A. & Seidell, J.C. (2001). The relationship between quality of life and perceived body weight and dieting history in Dutch men and women. *International Journal of Obesity and Related Metabolic Disorders*, 25(9), 1386-1392.
- Cade, J. & O'Connell, S. (1991). Management of weight problems and obesity: knowledge, attitudes and current practice of general practitioners. *British Journal of General Practice*, 41, 147-150.
- Callegari, A., Michelini, I., Sguazzin, C., Catona, A. & Klersy, C. (2005). Efficacy of the SF-36 questionnaire in identifying obese patients with psychological discomfort. *Obesity Surgery*, 15(2), 254-260.
- Campbell, M.K., DeVellis, B.M., Strecher, V.J., Ammerman, A.S., DeVellis, R.F. & Sandler, R.S. (1994). Improving dietary behavior: the effectiveness of tailored messages in primary care settings. *American Journal of Public Health*, 84, 783-787.
- Campbell, K., Engel, H., Timperio, A., Cooper, C. & Crawford, D. (2000). Obesity management: Australian general practitioners' attitudes and practices. *Obesity Research*, 8, 459-466.
- Cargill, B.R., Clark, M.M., Pera, V., Niaura, R.S. & Abrams, D.B. (1999). Binge eating, body image, depression, and self-efficacy in an obese clinical population. *Obesity Research*, 7(4), 379-386.
- Clark, M.M., Guise, B.J. & Niaura, R.S. (1995). Obesity level and attrition: support for patient- treatment matching in obesity treatment. *Obesity Research*, 3, 63-64.
- Cohen, S., Kamarck, T. & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.
- Cohen, S. & Williamson, G. (1988). Perceived Stress in a Probability Sample of the United States. In S. Spacapan & S. Oskamp (eds.). *The Social Psychology of Health* (pp.31-67). Newbury Park, CA: Sage.
- Comuzzie, A.G. & Allison, D.B. (1998). The search for human obesity genes. *Science*, 280, 1374-1377.
- Connelly, J.E. & Mushlin, A.I. (1986). The reasons patients request "checkups": implications for office practice. *Journal of General Internal Medicine*, 1, 163-165.
- Cooper, Z., Fairburn, C.G. & Hawker, D.M. (2008). *Kognitive Verhaltenstherapie bei Adipositas [Cognitive Behavioral Treatment of Obesity: A Clinician's Guide]*. Stuttgart: Schattauer.

- Corica, F., Corsonello, A., Apolone, G., Mannucci, E., Lucchetti, M., Bonfiglio, C. et al. (2008). Metabolic syndrome, psychological status and quality of life in obesity: the QUOVADIS Study. *International Journal of Obesity*, 32(1), 185-191.
- Coulter, A. & Magee, H. (2003). *The european patient of the future*. Maidenhead: Open University Press.
- DAG- Deutsche Adipositas-Gesellschaft, Deutsche Diabetes-Gesellschaft, Deutsche Gesellschaft für Ernährung, Deutsche Gesellschaft für Ernährungsmedizin (German Obesity Association, German Diabetes Association, German Nutrition Society, German Society for Clinical Nutrition). (2007). *Evidenzbasierte Leitlinie. Prävention und Therapie der Adipositas*. http://www.dgem.de/material/pdfs/Adipositas_LL_DGEM.pdf (accessed 20 October 2010)
- Davis, D., O'Brien, M.A., Freemantle, N., Wolf, F.M., Mazmanian, P. & Taylor- Vaisey, A. (1999). Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behaviour or health care outcomes? *Journal of the American Medical Association*, 282, 867-874.
- Delahanty, L.M., Meigs, J.B., Hayden, D., Williamson, D.A. & Nathan, D.M. (2002). Psychological and behavioral correlates of baseline BMI in the diabetes prevention program (DPP). *Diabetes Care*, 25(11), 1992-1998.
- Delichatsios, H.K., Hunt, M.K., Lobb, R., Emmons, K., Gillmann, M.W. (2001). Eatsmart: efficacy of a multifaceted prevention nutrition intervention in clinical practice. *Preventive Medicine*, 33, 91-98.
- Dennis, K.E. & Goldberg, A.P. (1996). Weight control self- efficacy types and transitions affect weight- loss outcomes in obese women. *Addictive Behavior*, 21, 103-111.
- Despres, J.P., Lemieux, I. & Prud'homme, D. (2001). Treatment of obesity: need to focus on high risk abdominally obese patients. *British Medical Journal*, 322, 716-720.
- Deveugele, M., Derese, A., Brink-Muinen van den, A., Bensing, J. & De Maeseneer, J. (2002). Consultation length in general practice: cross-sectional study in six European countries. *British Medical Journal*, 325(7362), 472.
- Deveugele, M., Derese, A. & De Maeseneer, J. (2002) Is GP-patient communication related to their perceptions of illness severity? *Social Science & Medicine*, 55, 167-175.
- Dickey, L.L., Gemson, D.H. & Carney, P. (1999). Office system interventions supporting primary care-based health behavior change counseling. *American Journal of Preventive Medicine*, 17, 299-308.
- Dijkstra, A., De Vries, H., Roijackers, J. & Breukelen, G. van (1998). Tailored interventions to communicate stage-matched information to smokers in different motivational stages. *Journal of Consulting and Clinical Psychology*, 66, 549-557.

- DiMarco, I.D., Klein, D.A., Clark, V.L. & Wilson, G.T. (2009). The use of motivational interviewing techniques to enhance the efficacy of guided self-help behavioral weight loss treatment. *Eating Behaviors*, 10, 134–136.
- Doll, H.A., Petersen, S.E. & Stewart-Brown, S.L. (2000). Obesity and physical and emotional well-being: associations between body mass index, chronic illness, and the physical and mental components of the SF-36 questionnaire. *Obesity Research*, 8(2), 160-170.
- Donner-Banzhoff, N., Sadowski, E. & Baum, E. (1995). Die Effektivität der Gesundheitsuntersuchung nach § 25 SGB V. *Zeitschrift für Allgemeinmedizin*, 71, 293-298.
- Donovan, J.L. & Blake, D.R. (1992). Patient non-compliance: deviance or reasoned decision-making? *Social Science & Medicine*, 24, 507–513.
- Eaton, C.B., Goodwin, M. A. & Stange, K. C. (2002). Direct Observation of Nutrition Counseling in Community Family Practice. *American Journal of Preventive Medicine*, 23(3), 174-179.
- Edwards, A., Elwyn, G., Wood, F., Atwell, C., Prior, L. & Houston, H. (2004). Shared decision making and risk communication in practice. A qualitative study of GPs' experiences. *British Journal of General Practice*, 55, 6-13.
- Elwyn, G., Edwards, A., Wensing, M. & Grol, R. (2005). *Shared decision making measurement using the OPTION instrument*. Cardiff: Cardiff University.
- Ely, A.C., Befort, C., Banitt, A., Gibson, C. & Sullivan, D. (2009). A qualitative assessment of weight control among rural Kansas women. *Journal of Nutrition Education and Behavior*, 41(3), 201-211.
- Emmons, K.M. & Rollnick, S. (2001). Motivational interviewing in health care settings: opportunities and limitations. *American Journal of Preventive Medicine*, 20, 68–74.
- Epstein, L. & Ogden, J. (2005). A qualitative study of GPs' views of treating obesity. *British Journal of General Practice*, 55, 750-754.
- Esch, T. (2002). Health in stress: change in the stress concept and its significance for prevention, health and life style. *Gesundheitswesen*, 64(2), 73-81.
- Esch, T. (2003). Stress, adaptation, and self-organization: balancing processes facilitate health and survival. *Forschende Komplementärmedizin und Klassische Naturheilkunde*, 10(6), 330-341.
- Esch, T., Stefano, G.B., Fricchione, G.L. & Benson, H. (2002). Stress in cardiovascular diseases. *Medical Science Monitor*, 8(5), RA93–101.
- Esch, T., Guarna, M., Bianchi, E., Zhu, W. & Stefano, G.B. (2004). Commonalities in the central nervous system's involvement with complementary medical therapies: limbic morphinergic processes. *Medical Science Monitor*, 10(6), MS6-17.

- Esch, T. & Stefano, G.B. (2007). A bio-psycho-socio-molecular approach to pain and stress management. *Forschende Komplementärmedizin und Klassische Naturheilkunde*, 14(4), 224–234.
- Esch, T., Duckstein, J., Welke, J. & Braun, V. (2007). Mind/body techniques for physiological and psychological stress reduction: stress management via Tai Chi training – a pilot study. *Medical Science Monitor*, 13(11), CR488–497.
- Felder- Puig, R., Turk, E., Guba, B. & Wild, C. (2006). *Das ärztlich- therapeutische Gespräch. Die Effektivität verstärkter Arzt- Patienten- Kommunikation [Therapeutic conversation: The effectiveness of intensified physician-patient communication]*. Wien: Ludwig- Boltzmann Institute.
- Finkelstein, M.M. (2000). Body mass index and quality of life in a survey of primary care patients. *The Journal of Family Practice*, 49(8), 734-737.
- Fisseni, G., Golücke, A. & Abholz, H.H. (2003). Warum machen deutsche Allgemeinärzte so wenig Früherkennung? *Zeitschrift für Allgemeinmedizin*, 79, 591-595.
- Flocke, S.A., Clark, A., Schlessman, K. & Pomiecko, G. (2005). Exercise, diet and weight loss advice in the family medicine outpatient setting. *Family Medicine*, 37(6), 415-421.
- Flocke, S. A. & Gilchrist, V. (2005). Physician and Patient Gender Concordance and the Delivery of Comprehensive Clinical Preventive Services. *Medical Care*, 43(5), 486-492.
- Fogelman, Y., Vinker, S., Lachter, J., Biderman, A., Itzhak, B. & Kitai, E. (2002). Managing obesity: a survey of attitudes and practices among Israeli primary care physicians. *International Journal of Obesity and Related Metabolic Disorders*, 26, 1393-1397.
- Fontaine, K.R. & Barofsky, I. (2001). Obesity and health- related quality of life. *Obesity Reviews*, 2(3), 173-182.
- Foster, G.D., Wadden, T.A., Makris A.P., Davidson, D., Sanderson, R.S., Allison, D.B. & Kessler, A. (2003). Primary care physicians' attitudes about obesity and its treatment. *Obesity Research*, 11, 1168-1177.
- Frosch, D.L. & Kaplan, R.M. (1999). Shared decision making in clinical medicine: past research and future directions. *American Journal of Preventive Medicine*, 17, 285–294.
- Fuchs, Z., Viskoper, J.R., Drexler, I., Nitzan, H., Lubin, F., Berlin, S., Almagor, M., Zulty, L., Chetrit, A. & Mishal, J. (1993). Comprehensive individualised nonpharmacological treatment programme for hypertension in physician–nurse clinics: two year follow-up. *Journal of Human Hypertension*, 7, 585–591.
- Galuska, D.A., Will, J.C., Serdula, M.K. & Ford, E.S. (1999). Are health care professionals advising obese patients to lose weight? *Journal of the American Medical Association*, 282, 1576-1578.

- Glasgow, R.E., Whitlock, E.P., Eakin, E.G. & Lichtenstein, E. (2000). A brief smoking cessation intervention for women in low-income planned parenthood clinics. *American Journal of Public Health*, 90, 786–789.
- Glasgow, R., Orleans, C.T., Wagner, E.H., Curry, S.J. & Solberg, L.I. (2001). Does the chronic care model serve also as a template for improving prevention? *Milbank Quarterly*, 79, 579–612.
- Glöser, S. (1998). Check-up 35 - für viele Ärzte eine lästige Pflichtübung. *Deutsches Ärzteblatt*, A-1829.
- Glenny, A.M., O'Meara, S., Melville, A., Sheldon, T.A. & Wilson, C. (1997). The treatment and prevention of obesity: a systematic review of the literature. *International Journal of Obesity and Related Metabolic Disorders*, 21, 715-737.
- Glynn, T.J. & Manley, M.W. (1989). *How to help your patients stop smoking: a manual for physicians*. National Cancer Institute: Bethesda, MD.
- Goldstein, D.J. (1992). Beneficial health effects of modest weight loss. *International Journal of Obesity and Related Metabolic Disorders*, 16, 397-415.
- Goldstein, M.G., DePue, J. & Kazuira, A. (1998). Models for provider-patient interaction: applications to health behavior change. In S.A. Shumaker, E.B. Schon, J.K. Ockene & W.L. McBeem (Eds.), (2nd ed., pp. 85-113), New York: Springer.
- Gollwitzer, P.M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54, 493-503.
- Goss, C., Moretti, F., Mazzi, M.A., Del Piccolo, L., Rimondini, M. & Zimmermann, C. (2008). Involving patients in decisions during psychiatric Consultations. *The British Journal of Psychiatry*, 193, 416-421.
- Grief, S.N. & Talamayan, K.S. (2008). Preventing obesity in the primary care setting. *Primary Care*, 35(4), 625-643.
- Griffin, S.J., Kinmonth, A.L., Veltman, M.V., Gillard, S., Grant, J. & Stewart, M. (2004). Effect on health-related outcomes of interventions to alter the interaction between patients and practitioners: a systematic review of trials. *Annals of Family Medicine*, 2, 595-608.
- Hauer, H. & Berg, A. (2000). Körperliche Bewegung zur Prävention und Behandlung der Adipositas. *Deutsches Ärzteblatt*, 97, A768-774.
- Hauer, H., Wechsler, J.G., Kluthe, R., Liebermeister, H., Ebersdobler, H., Wolfram, G., Fürst, P. & Jauch K.W. (2000). Qualitätskriterien für ambulante Adipositasprogramme. *Aktuelle Ernährungsmedizin*, 25, 163-165.
- Hebl, M.R. & Xu, J. (2001). Weighing the care: physicians' reactions to the size of a patient. *International Journal of Obesity and Related Metabolic Disorders*, 25 (8), 1246-1252.

- Hedley, A.A., Ogden, C.L., Johnson, C.L., Carroll, M.D., Curtin, L.R. & Flegal, K.M. (2004). Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. *Journal of the American Medical Association*, 291, 2847-2850.
- Heintze, C., Metz, U., Dieterich, A., Schwantes, U. & Wiesner, J. (2008). Ursachen von Übergewicht. Eine qualitative Analyse von Arzt-Patienten- Gesprächen im Kontext der hausärztlichen Gesundheitsuntersuchung. *Prävention und Gesundheitsförderung*, 3, 289-295.
- Heintze, C., Metz, U., Hahn, D., Niewöhner, J., Schwantes, U., Wiesner, J. & Braun, V. (2010). Counseling overweight in primary care: An analysis of patient-physician encounters. *Patient Education and Counselling*, 80, 71-75.
- Henderson, J.T. & Weisman, C.S. (2001). Physician gender effects on preventive screening and counseling: an analysis of male and female patients' health care experiences. *Medical Care*, 39(12), 1281-1292.
- Hill, J.O. & Peters, J.C. (1998). Environmental contributions to the obesity epidemic. *Science*, 280, 1371-1374.
- Hollaus, P.H., Pucher, I., Wilfing, G., Wurnig, W.N. & Pridun, N.S. (2003). Preoperative attitudes, fears and expectations of non-small cell lung cancer patients. *Interactive Cardiovascular and Thoracic Surgery*, 2(2):206-209.
- Hollis, J.F., Lichtenstein, E., Vogt, T.M., Stevens, V.J. & Biglan, A. (1993). Nurse-assisted counseling for smokers in primary care. *Annals of Internal Medicine*, 118, 521-525.
- Huang, J., Yu, H., Marin, E., Brock, S., Carden, D. & Davis, T. (2004). Physicians' Weight Loss Counselling in Two Public Hospital Primary Care Clinics. *Academic Medicine*, 79(2), 156-161.
- Hunt, J.R., Kristal, A.R., White, E., Lynch, J.C. & Fries, E. (1995). Physician recommendations for dietary change: their prevalence and impact in a population-based sample. *American Journal of Public Health*, 85, 722-726.
- Hunt, M.K., Lobb, R., Delichatsios, H.K., Stone, C., Emmons, K. & Gillmann, M.W. (2001). Process evaluation of a clinical preventive nutrition intervention. *Preventive Medicine*, 33, 82-90.
- Hutton, C. & Gunn, J. (2007). Do longer consultations improve the management of psychological problems in general practice? A systematic literature review. *BMC Health Service Research*, 7(7), 71.
- Hyman, M.A. (2005). Refrigerator rights--the missing link in health, disease, and obesity. *Alternative Therapies in Health and Medicine*, 11(4), 10-12.
- ICD-10. (2010). *International classification of diseases*. <http://www.who.int/classifications/icd/en/> (accessed 20th October 2010)

- Jefferey, R.W. (1996). Bias in reported body weight as a function of education, occupation, health and weight concern. *Addictive Behaviors*, 21(2), 217-222.
- Jeffery, R.W., Drewnowski, A., Epstein, L.H., Stunkard, A.J., Wilson, G.T. & Wing, R.R. (2000). Long- term maintenance of weight loss. Current status. *Health Psychology*, 19, 5-16.
- Jerusalem, M. & Schwarzer, R. (2001). Skala zur Allgemeinen Selbstwirksamkeitserwartung. In E. Brähler, J. Schumacher & B. Strauß (Eds.), *Diagnostische Verfahren in der Psychotherapie*, Göttingen: Hogrefe.
- Kiernan, M., King, A.C., Kraemer, H.C., Stefanick, M.L. & Killen, J.D. (1998). Characteristics of successful and unsuccessful dieters: an application of signal detection methodology. *Annals of Behavioral Medicine*, 20, 1-6.
- Kleinman, A. (1981). On illness meanings and clinical interpretation: not 'rational man', but a rational approach to man the sufferer/man the healer. *Culture, Medicine and Psychiatry*, 5(4), 373-377.
- Klumbiene, J., Petkeviciene, J., Vaisvalavicius, V.& Miseviciene, I. (2006). Advising overweight persons about diet and physical activity in primary health care: Lithuanian health behavior monitoring study. *BMC Public Health*, 6, 30.
- Knopf, H., Ellert, U. & Melchert, H.U. (1999). Sozialschicht und Gesundheit. *Gesundheitswesen*, 61, 169-177.
- Kottke, T.E., Edwards, B.S. & Hagen, P.T. (1999). Counseling: implementing our knowledge in a hurried and complex world. *American Journal of Preventive Medicine*, 17, 295–298.
- Koop, E.C. (1996). Health promotion and disease prevention in clinical practice. In R.S. Lawrence, S.H. Woolf & S. Jonas, (Eds.), *Health promotion and disease prevention in clinical practice* (pp. vii–ix). Baltimore: Williams & Wilkins.
- Kreuter, M.W., Chheda, S.G. & Bull, F.C. (2000). How does physician advice influence patient behavior? Evidence for a priming effect. *Archives of Family Medicine*, 9, 426–433.
- Krueter, J., Farrell, D., Olevitch, L. & Brennan, L. (2000). *Tailoring health messages: customizing communication with computer technology*. Mahwah, NJ: Erlbaum.
- Krupat, E., Rosenkranz, S.L., Yeager, C.M., Barnard, K., Putnam, S.M. & Inui, T.S. (2000). The practice orientations of physicians and patients: the effect of doctor-patient congruence on satisfaction. *Patient Education and Counselling*, 39, 49-59.
- Kuhl, J. (1996). Wille und Freiheitserleben: Formen der Selbststeuerung. In J. Kuhl & H. Heckhausen (Eds.). *Enzyklopädie der Psychologie: Motivation, Volition und Handlung* (Serie IV, Bd.4, S.665-765). Göttingen: Hogrefe.

- Kuntz, C.B., Ronan, G.F., Ronan, D.W. & Johnson, C. (1994). Levels of obesity in women: a test of group differences in stress, self-efficacy, and problem-solving (Abstract). *Annals of Behavioral Medicine*, 16 (Suppl), S082.
- Kurth, B-M. & Schaffrath- Rosario, A. (2007). Die Verbreitung von Übergewicht und Adipositas bei Kindern und Jugendlichen in Deutschland - Ergebnisse des bundesweiten Kinder- und Jugendgesundheits surveys (KiGGS), *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 50, 736-743.
- Kushner, R.F. (1995). Barriers to providing to nutrition counseling by physicians. *Preventive Medicine*, 24(6), 546-52.
- KV Berlin (2010). Kassenärztliche Vereinigung (association of statutory health insurance physicians). *Der Check-up* 35. <http://www.kvberlin.de/30patienten/30vorsorge/40check/index.html> (accessed 20th October 2010)
- Laine, C. (2002). The annual physical examination: needless ritual or necessary routine? *Annals of Internal Medicine*, 136, 701-703.
- Lakka, H.M., Laaksonen, D.E., Lakka ,T.A., Niskanen, L.K., Kumpusalo, E., Tuomilehto, J. & Salonen, J.T. (2002). The metabolic syndrome and total and cardiovascular disease mortality in middle-aged men. *Journal of the American Medical Association*, 288, 2709-2716.
- Lane, C., Huws-Thomas, M., Rollnick, S., Hood, K., Edwards, K. & Robling, M. (2005). Measuring adaptations of motivational interviewing: The development and validation of the Behaviour Change Counseling Index (BECCI). *Patient Education and Counselling*, 56, 166-173.
- Lazarus, R.S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Lewis, C.E., Jacobs, D.R. Jr, McCreath, H., Kiefe, C.I., Schreiner, P.J., Smith, D.E. & Williams, O.D. (2000). Weight gain continues in the 1990s: 10-year trends in weight and overweight from the Coronary Artery Risk Development in Young Adults (CARDIA) study. *American Journal of Epidemiology*, 151, 1172–1181.
- Lerman, E., Brody, D.S., Caputo, G.S., Smith, D.G., Lazaro, C.G. & Wolfson, H.G. (1990). Patients' Perceived Involvement in Care Scale: relationship to attitudes about illness and medical care. *Journal of General Internal Medicine*, 5, 29–33.
- Lichtenstein, E. & Glasgow, R.E. (1992). Smoking cessation: What have we learned over the past decade? *Journal of Consulting and Clinical Psychology*, 60, 518–527.
- Lippke, S. & Renneberg, B. (2006). Theorien und Modelle des Gesundheitsverhaltens. In B. Renneberg & P. Hammelstein (Eds.). *Gesundheitspsychologie [Health Psychology]* (S.35- 60), Heidelberg: Springer.

- Little, P., Everitt, H., Williamson, I., Warner, G., Moore, M. & Gould, C. (2001). Preferences of patients for patient centered approach to consultation in primary care: observational study. *British Medical Journal*, 322, 468–472.
- Loh, A., Simon, D., Henning, K., Henning, B., Härter, M. & Elwyn, G. (2006). The assessment of depressive patients' involvement in decision making in audio-taped primary care consultations. *Patient Education and Counselling*, 63, 314-318.
- Lohaus, A. & Schmitt, G.M. (1989). *Fragebogen zur Erhebung von Kontrollüberzeugungen zu Krankheit und Gesundheit (KKG). Handanweisung*. Göttingen: Hogrefe.
- Loureiro, M.L. & Nayga, R.M. (2006). Obesity, weight loss, and physician's advice. *Social Science & Medicine*, 62(10), 2458-2468.
- Luckmann, R. & Melville, S.K. (1995). Periodic health evaluation of adults: a survey of family physicians. *Journal of Family Practice*, 40, 547-554.
- Lurie, N., Margolis, K.L., McGovern, P.G., Mink, P.J. & Slater, J.S. (1997). Why do patients of female physicians have higher rates of breast and cervical cancer screening? *Journal of General Internal Medicine*, 12(1), 34-43.
- Lyznicki, J.M., Young, D.C., Riggs, J.A & Davis, R.M. (2001) Obesity: assessment and management in primary care. *American Family Physician*, 63(11), 2185-2196.
- Maddox, G.L. & Liederman, V. (1969). Overweight as a social disability with medical implications. *Journal of Medical Education*, 44, 214-220.
- Marcus, H., Goldstein, M.G. & Jette, A. (1997). Training physicians to conduct physical activity counseling. *Preventive Medicine*, 26, 382–388.
- Marniemi, J., Kronholm, E., Aunola, S., Toikka, T., Mattlar, C.E., Koskenvuo, M. et al. (2002). Visceral fat and psychosocial stress in identical twins discordant for obesity. *Journal of Internal Medicine*, 251(1), 35-43.
- Martin, P.D., Dutton, G.R., Rhode, P.C, Horswell, R.L., Ryan, D.H. & Brantley, P.J. (2008). Weight loss maintenance following a primary care intervention for low income minority woman, *Obesity*, 16(11), 2462–2467.
- Mayring, P. (1997). *Qualitative Inhaltsanalyse. Grundlagen und Techniken [Content analysis. Introduction and methodology]* 6th ed. Weinheim: Deutscher Studienverlag.
- McGinnis, J.M. & Foege, W.H. (1993). Actual causes of death in the United States. *Journal of the American Medical Association*, 270, 2207–2212.
- Mensink, G.B.M., Lampert, T. & Bergmann E. (2005). Übergewicht und Adipositas in Deutschland 1984-2003. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 48, 1356.

- Mensink, G.B.M. & Bergmann, K.E. (1999). Körpermaße und Übergewicht. *Gesundheitswesen*, 61, 115-120.
- Mercer, S.W. & Tessier, S. (2001). A qualitative study of general practitioners' and practice nurses' attitudes to obesity management in primary care. *Health Bulletin (Edinburgh)*, 59, 248-253.
- Merrill, R.M. & Aldana, S.G. (2008). Cardiovascular risk reduction and factors influencing loss to follow-up in the coronary health improvement project. *Medical Science Monitor*, 14(4), PH17-25.
- Metz, U., Welke, J., Esch, T., Renneberg, B., Braun, V. & Heintze, C. (2009). Perception of stress and quality of life in overweight and obese people – Implications for preventive consultancies in primary care. *Medical Science Monitor*, 15(1), 1-6.
- Michalsen, A., Grossman, P., Acil, A., Langhorst, J., Ludtke, R., Esch, T., Stefano, G.B. & Dobos G.J. (2005). Rapid stress reduction and anxiolysis among distressed women as a consequence of a three-month intensive yoga program. *Medical Science Monitor*, 11, CR555-561.
- Miller, W. R. (1983). Motivational interviewing with problem drinkers. *Behavioural Psychotherapy*, 11, 147-172.
- Miller, W.R. (1998). Enhancing motivation for change. In W.R. Miller and N. Heather (Eds.) *Treating addictive behaviors* (2nd ed., pp. 121–132), New York: Plenum Press.
- Miller, W.R. & Rollnick, S. (1991). *Motivational interviewing: preparing people to change addictive behavior*. New York: Guilford Press.
- Mischel, W., Shoda, Y. & Peake, P.K. (1988). The nature of adolescent competencies predicted by preschool delay of gratification. *Journal of Personality and Social Psychology*, 54, 687-696.
- Moran, J., Bekker, H. & Latchford, G. (2008). Everyday use of patient-centred, motivational techniques in routine consultations between doctors and patients with diabetes. *Patient Education and Counselling*, 73, 224-231.
- National Task Force on the Prevention and Treatment of Obesity (2000). Overweight, obesity, and health risk. *Archives of Internal Medicine*, 160, 898-904.
- Newell, S.A., Girgis, A., Sanson-Fisher, R.W. & Savolainen, N.J. (1999). The accuracy of self-reported health behaviors and risk factors relating to cancer and cardiovascular disease in the general population: a critical review. *American Journal of Preventive Medicine*, 17, 211–229.
- Norman, P. & Bennet, P. (1996). Health locus of control. In M. Conner & P. Norman (Eds.). *Predicting health behavior* p. 62–94. Buckingham, Ph: Open University Press.
- Nupponen, R. (1998). What is counseling all about - basis in the counseling of health-related physical activity. *Patient Education and counselling*, 33(suppl. 1), 61-67.

- Oboler, S.K., Prochazka, A.V., Gonzales, R., Xu, S. & Anderson, R.J. (2002). Public expectations and attitudes for annual physical examinations and testing. *Annals of Internal Medicine*, 136, 652-659.
- Ockene, J.K., Ockene, I.S., Quirk, M.E., Saperia, G.M., Clemow, L., Luippold, R.S., Merriam, P.A. & Ellis S. (1995). Physician training for patient-centered nutrition counseling in a lipid intervention trial. *Preventive Medicine*, 24, 563-570.
- O'Connor, A.M., Stacey, D., Rovner, D., Holmes-Rovner, M., Tetroe, J. & Llewellyn-Thomas, H. (2001). Decision aids for people facing health treatment or screening decisions. *Cochrane Database Systematic Reviews*.
- Ogden, J., Baig, S., Earnshaw, G., Elkington, H., Henderson, E., Lindsay, J. & Nandy, S. (2001). What is health? and where GPs and patients worlds collide. *Patient Education and counselling*, 45, 265-269.
- Ogden, J., Bandara, I., Cohen, H., Farmer, D., Hardie, J., Minas, H., Moore, J., Qureshi, S., Walter, F. & Whitehead, M.A. (2001). General practitioners' and patients' models of obesity: whose problem is it? *Patient Education and Counselling*, 44, 227-236.
- Ogden, J. & Flanagan, Z. (2008). Beliefs about the causes and solutions to obesity: a comparison of GPs and lay people. *Patient Education and counselling*, 71, 72-78.
- Orbell, S. & Sheeran, P. (1998). „Inclined abstainers“: A Problem of predicting health - related behaviour. *British Journal of Social Psychology*, 37, 151-165.
- Othman, C., Wollny, A., Abholz, H.-H. & Altiner, A. (2008). Die Gesundheitsuntersuchung – ein ungeliebtes Stiefkind? Eine qualitative Untersuchung. *Zeitschrift für Allgemeinmedizin*, 84, 280-285.
- Pendleton, D., Schofield, T., Tate, P. & Havelock, P. (1984). *The consultation - an Approach to Learning and Teaching*. Oxford: Oxford University Press.
- Perri, M.G. (1998). The maintenance of treatment effects in the long- term management of obesity. *Clinical Psychology: Science and Practice*, 5, 526-43.
- Perri, M.G. (2002). Improving maintenance in behavioural treatment. In C.G.Fairburn & K.D. Brownell KD (ed.). *Eating disorders and obesity. A comprehensive handbook* (2nd ed., pp.357-379). New York: Guilford.
- Perri, M.G., McKelvey, W.F., Renjilian, D.A., Nezu, A.M., Shermer, R.L. & Viegner, B.J. (2001). Relapse prevention training and problem- solving therapy in long- term management of obesity. *Journal of Consulting and Clinical Psychology*, 69, 722-726.
- Pietrowsky, R. (2006). Ernährung. In B. Renneberg & P. Hammelstein (Ed.). *Gesundheitspsychologie [Health Psychology]* (pp.173-194), Heidelberg: Springer.
- Pheley, A.M., Terry, P., Pietz, L., Fowles, J., McCoy, C.E. & Smith, H. (1995). Evaluation of a nurse-based hypertension management program: screening, management, and outcomes. *Journal of Cardiovascular Nursing*, 9, 54-61.

- Pignone, M.P., Ammerman, A., Fernandez, L., Orleans, C.T., Pender, N., Woolf, S., Lohr, K.N. & Sutton, S. (2003). Counseling to promote a healthy diet in adults: a summary of the evidence for the U.S. Preventive Services Task Force. *American Journal of Preventive Medicine*, 24, 75-92.
- Pinto, B.M., Lynn, H., Marcus, B.H., DePue, J. & Goldstein, M.G. (2001). Physician-based activity counseling: intervention effects on mediators of motivational readiness for physical activity. *Annals of Behavioral Medicine*, 23, 2–10.
- Pi-Sunyer, F.X. (1993). Medical hazards of obesity. *Annals of Internal Medicine*, 119, 655-660.
- Pollak, K.I., Østbye, T., Alexander, S.C., Gradison, M., Bastian, L.A., Namenek, R.J., Brouwer, M.S. & Lyna, P. (2007). Empathy goes a long way in weight loss discussions. *Journal of Family Practice*, 56(12), 1031-1036.
- Price, J.H., Desmond, S.M., Krol, R.A., Snyder, F.F. & O'Connell, J.K. (1987). Family practice physicians' beliefs, attitudes, and practices regarding obesity. *American Journal of Preventive Medicine*, 3, 339-345.
- Prochaska, J. O., DiClemente, C. C. & Norcross, J. C. (1992). In search of how people change. *American Psychologist*, 47, 1102-1114.
- Prochaska, J.O., Norcross, J.C., Fowler, J.L., Follick, M.J. & Abrams, D.B. (1992). Attendance and outcome in a work site weight control program: Processes and stages of change as process and predictor variables. *Addictive Behavior*, 17, 35-45.
- Prochaska, J. O. & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion*, 12, 38-48.
- Pudel, V. (2001). Psychologische Ansätze in der Adipositas therapie. *Bundesgesundheitsblatt - Gesundheitsforschung – Gesundheitsschutz*, 4, 954-959.
- Pudel, V. & Westenhöfer, J. (1998). *Ernährungspsychologie [Psychology of Nutrition]* (3rd ed.). Göttingen: Hogrefe.
- Regus, S., Sonntag, U., Bockelbrink, A., Welke, J., Braun, V. & Heintze, C. (2010). Die Gesundheitsuntersuchung- welchen Nutzen sehen Brandenburger Hausärzte? *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen*, doi:10.1016/j.zefq.2010.07.012.
- Renner, B. Knoll, N. & Schwarzer, R. (2000). Age and body weight make a difference in optimistic health beliefs and nutrition behaviors. *International Journal of Behavioral Medicine*, 7, 143-159.
- Renner, B. & Schwarzer, R. (2003a). Risikostereotype, Risikowahrnehmung, und Risikoverhalten im Zusammenhang mit HIV. *Zeitschrift für Gesundheitspsychologie*, 11, 112-121.

- Renner, B. & Schwarzer, R. (2003b). Social- cognitive factors in health behavior change. In J. Suls & K. Wallston (Eds.) *Social psychological foundations of health and illness* (pp. 169-196). Oxford, UK: Blackwell.
- RKI.(2003). Robert- Koch- Institute. Übergewicht und Adipositas. *Gesundheitsberichterstattung des Bundes*, Heft 16. Berlin.
- Rogers, C. (1957). The necessary and sufficient conditions for therapeutic personality change. *Journal of Consulting and Clinical Psychology*, 21, 95–103.
- Rollnick, S., Mason, P. & Butler, C. (1999). *Health behavior change: a guide for practitioners*. Edinburgh and New York: Churchill Livingstone.
- Rollnick, S. & Miller, W.R. (1995). What is motivational interviewing? *Behavioural and Cognitive Psychotherapy*, 23, 325–334.
- Rollnick, S., Miller, W.R. & Butler, C. (2008). *Motivational Interviewing in Health Care. Helping patients change behaviour*. New York: The Guilford Press.
- Romero-Corall, A. Montori, V.M., Somers, V.K., Korinek, J., Thomas, R.J., Allison, T.G., Mookadam, F. & Lopez-Jimenez, F. (2006). Association of bodyweight with total mortality and with cardiovascular events in coronary artery disease: a systematic review of cohort studies. *Lancet*, 368, 666–678.
- Rosolova, H., Petrlova, B., Simon, J., Sifalda, P. & Sipova, I. (2008). High-sensitivity C-reactive protein and the hypertriglyceridemic waist in patients with type 2 diabetes and metabolic syndrome. *Medical Science Monitor*, 14(8), CR411-415.
- Roter, D.L., Hall, J.A., Merisca, R., Nordstrom, B., Cretin, D. & Svarstad, B. (1998). Effectiveness of interventions to improve patient compliance: meta-analysis. *Medical Care*, 36, 1138–1161.
- Roter, D.L., Hall, J.A. & Aoki, Y. (2002). Physician gender effects in medical communication: a meta-analytic review. *Journal of the American Medical Association*, 288(6), 756-764.
- Roter, D.L. & Hall, J.A. (2004). Physician Gender and Patient-Centered Communication: A Critical Review of Empirical Research. *Annual Review of Public Health*, 25, 497-519.
- Roter, D. & Larson, S. (2002). The Roter interaction analysis system (RIAS): utility and flexibility for analysis of medical interactions. *Patient Education and Counselling*, 46, 243–251.
- Rotter, J.B. (1966). Generalized expectancies for internal vs. external locus of control of reinforcement. *Psychological Monographs*, 80, 1- 28.
- Rossi, S.R., Rossi, J.S., Rossi-DelPrete, L.M., Prochaska, J.O., Banspach, S.W. & Carleton, R.A. (1994). A processes of change model for weight control for participants in communitybased weight loss programs. *International Journal of Mental Health and Addiction*, 29, 161-177.

- Rowland, M.L. (1990). Self-reported weight and height. *American Journal of Clinical Nutrition*, 52(6), 1125–1133.
- Rubak, S., Sandbæk, A., Lauritzen, T. & Christensen, B. (2005). Motivational interviewing: a systematic review and meta-analysis. *British Journal of General Practice*, 55, 305-312.
- Ruelaz, A.R., Diefenbach, P., Simon, B., Lanto, A., Aterburn, D. & Shekelle, P.G. (2007). Perceived barriers to weight management in primary care--perspectives of patients and providers. *Journal of General Internal Medicine*, 22, 518-522.
- Safran, D.G., Taira, D.A., Rogers, W.H., Kosinski, M., Ware, J.E. & Tarlov, A.R. (1998). Linking primary care performance to outcomes of care. *Journal of Family Practice*, 47, 213-220.
- Sahlan, S., Wollny, A., Brockmann, S., Fuchs, A. & Altiner, A. (2008). Reducing unnecessary prescriptions of antibiotics for acute cough: adaptation of a leaflet aimed at Turkish immigrants in Germany. *BMC Family Practice*, 9, 57.
- Sattar, N., Gaw, A., Scherbakova, O., Ford, I., O'Reilly, D.S., Haffner, S.M., Isles, C., Macfarlane, P.W., Packard, C.J., Cobbe, S.M. & Shepherd, J. (2003). Metabolic syndrome with and without Creactive protein as a predictor of coronary heart disease and diabetes in the West of Scotland Coronary Prevention Study. *Circulation*, 108, 414-419.
- Scott, J.G., Cohen, D., DiCicco-Bloom, B., Orzano, A.J., Gregory, P., Flocke, S.A., Maxwell, L. & Crabtree, B. (2004). Speaking of weight: how patients and primary care clinicians initiate weight loss counselling. *Preventive Medicine*, 38(6), 819-827.
- Scheibler, F., Janssen, C. & Pfaff, H. (2003). Shared decision making: an overview of international research literature. *Sozial- und Präventivmedizin*, 48, 11-23.
- Schmitt, G.M., Lohaus, A. & Salewski, C. (1989). Kontrollüberzeugungen und Patienten-Compliance: Eine empirische Untersuchung am Beispiel von Jugendlichen mit Diabetes mellitus, Asthma bronchiale und Alopecia areata. *Psychotherapie und Psychologie*, 39, 33-40.
- Schwartz, M.B., Chambliss, H.O., Brownell, K.D., Blair, S.N. & Billington, C. (2003). Weight bias among health professionals specializing in obesity. *Obesity Research*, 11, 1033–1039.
- Schwarzer, R. (1992). Self-efficacy in the adoption and maintenance of health behaviors: Theoretical approaches and a new model. In R. Schwarzer (Ed.) *Self-efficacy: Thought control of action* (pp.217-243). Washington, DC: Hemisphere.
- Schwarzer, R. & Renner, B. (2000). Social- cognitive predictors of health behavior: Action self-efficacy and coping self-efficacy. *Health Psychology*, 19, 487-495

- Scottish Intercollegiate Guidelines Network. (1996). *Obesity in Scotland. Integrating prevention with weight management. A national clinical guideline recommended for use in Scotland*. Edinburgh, Scotland: SIGN.
- SGB V – Öffentliches Gesundheitswesen (2008). Book V of the Social Code. *Krankenversicherungsrecht- Vertragsärztliche Versorgung-Krankenhausversorgung-Heil- und Hilfsmittelversorgung- Arzneimittelversorgung-Sonstige Versorgung* (15th ed.). München: DTV-Beck.
- Sherbourne, C.D., Sturm, R. & Wells, K.B. (1999). What outcomes matter to patients? *Journal of General Internal Medicine*, 14(6), 357–363.
- Simpson, M., Buckman, R., Stewart, M., Maguire, P., Lipkin, M., Novack, D. & Tillet, J. (1991). Doctor-patient communication: the Toronto Consensus Statement. *British Medical Journal*, 303, 1385–1387.
- Skinner, C.S., Campbell, M.K., Rimer, B.K., Curry, S. & Prochaska, J.O. (1999). How effective is tailored print communication? *Annals of Behavioral Medicine*, 21, 290–298.
- Solberg, L.I. & Kottke, T.E. (1998). Patient perceptions: an important contributor to how physicians approach tobacco cessation. *Tobacco Control*, 7, 421–422.
- Sönnichsen, A.C., Sperling, T., Donner-Banzhoff, N. & Baum, E. (2007). Unterschiede zwischen Teilnehmern und Nichtteilnehmern an der Gesundheitsuntersuchung. *Zeitschrift für Allgemeinmedizin*, 83, 355-358.
- Sonntag, U., Esch, T., von Hagen, L., Renneberg, B., Braun, V. & Heintze, C. (2010). Locus of control, self-efficacy and attribution tendencies in obese patients – implications for primary care consultations. *Medical Science Monitor*, 16(7), CR330-335.
- Sonntag, U., Henkel, J., Renneberg, B., Bockelbrink, A., Braun, V. & Heintze, C. (2010). Counselling overweight patients: analysis of preventive encounters in primary care. *International Journal for Quality in Health Care*, doi:10.1093/intqhc/mzq060.
- Starfield, B., Wray, C., Hess, K., Gross, R., Birk, P.S. & D'Lugoff BC. (1981). The influence of patient-practitioner agreement on outcome of care. *American Journal of Public Health*, 71, 127- 131.
- Stefano, G.B., Stefano, J.M. & Esch, T. (2008). Anticipatory stress response: A significant commonality in stress, relaxation, pleasure and love responses. *Medical Science Monitor*, 14(2), RA17–21.
- Steptoe, A., Doherty, S., Kendrick, T., Rink, E. & Hilton, S. (1999). Attitudes to cardiovascular health promotion among GPs and practice nurses. *Family Practice*, 16, 158-163.
- Steptoe, A., Kerry, S., Rink, E. & Hilton, S. (2001). The Impact of Behavioral Counseling in Stage of Change in Fat Intake, Physical Activity, and Cigarette Smoking in Adults at Increased Risk of Coronary Heart Disease. *American Journal of Public Health*, 91(2), 265-269.

- Stewart, M.A. (1995). Effective physician-patient communication and health outcomes: a review. *Canadian Medical Association Journal*, 152, 1423-1433.
- Stewart, M., Brown, J.B., Weston, W.W., McWhinney, I.R., William, C., Reeman, T.R. (2003). *Patient-centered medicine: transforming the clinical method*. Radcliffe: Medical Press.
- Stirling, A.M., Wilson, P. & McConnachie, A. (2001). Deprivation, psychological distress and consultation length in general practice. *British Journal of General Practice*, 51, 456–460.
- Stotland, S., Zuroff, D.C. & Roy, M. (1991). Situational dieting self-efficacy and short-term regulation of eating. *Appetite*, 17, 81-90.
- Strecher, J., Kreuter, M., Den Boer, D.J., Kobrin, S., Hospers, H.J. & Skinner, C.S. (1994). The effects of computer-tailored smoking cessation messages in family practice settings. *Journal of Family Practice*, 39, 262–270.
- Taylor, C.B., Fortmann, S.P., Flora, J., Kayman, S., Barrett, D.C., Jatulis, D. & Farquhar, J.W. (1991). Effect of long-term community health education on body mass index. The Stanford Five- City Project. *American Journal of Epidemiology*, 134, 235-249.
- Teachman, B.A. & Brownell, K.D. (2001). Implicit anti-fat bias among health professionals: is anyone immune? *International Journal of Obesity*, 25, 1525–1531.
- Teixeira, P.J., Going, S.B., Sardinha, L.B. & Lohman, T.G. (2005). A review of psychosocial pre- treatment predictors of weight control. *Obesity Reviews*, 6(1), 43-65.
- Thande, N.K., Hurstak, E.E., Sciacca, R.E. & Giardina, E.G.V. (2009). Management of Obesity: A Challenge for Medical Training and Practice, *Obesity*, 17(1), 107-113.
- Theorell, T. (1992). The psycho-social environment, stress, and coronary disease. In M. Marmot & P. Elliot (eds.) *Coronary heart disease epidemiology* (pp. 256-273). Oxford: Oxford University Press.
- Thode, N., Bergmann, E., Kamtsiurs, P. & Kurth, B.M. (2005). Einflussfaktoren auf die ambulante Inanspruchnahme. *Bundesgesundheitsblatt – Gesundheitsforschung – Gesundheitsschutz*, 43, 415-423.
- Thompson, R.S. (1996). What have HMOs learned about clinical prevention services? An examination of the experience at Group Health Cooperative of Puget Sound. *Milbank Quarterly*, 74, 469–509.
- Thompson, D. & Wolf, A.M. (2001). The medical-care cost burden of obesity. *Obesity Reviews*, 2, 189-197.
- Thuan, J.F. & Avignon, A. (2005). Obesity management: attitudes and practices of French general practitioners in a region of France. *International Journal of Obesity*, 29, 1100–1106.

- Timmerman, G.M., Reifsnider, E. & Allan, J.D. (2000). Weight management practices among primary care providers. *Journals of the American Academy of Nurse Practitioners*, 12, 113-116.
- Tobias, L.L. & MacDonald, M.L. (1977). Internal locus of control and weight loss: an insufficient condition. *Journal of Consulting and Clinical Psychology*, 45, 647–653.
- Tonstad, S, Soderblom Alm, S. & Sandvik, E. (2007). Effect of nurse counseling on metabolic risk factors in patients with mild hypertension: A randomised controlled trial. *European Journal of Cardiovascular Nursing*, 6, 160-164.
- Tsai, A.G. & Wadden, T.A. (2009). Treatment of obesity in primary care practice in the United States: a systematic review. *Journal of General Internal Medicine*, 24(9), 1073-1079.
- Tunstall-Pedoe, H., Kuulasmaa, K., Mahonen, M., Tolonen, H., Ruokokoski, E. & Amouyel, P. (1999). Contribution of trends in survival and coronary-event rates to changes in coronary heart disease mortality: 10-year results from 37 WHO MONICA project populations. Monitoring trends and determinants in cardiovascular disease. *Lancet*, 353(9164), 1547-1557.
- U.S. Preventive Services Task Force. (2003). *Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults*. NIH- National Institutes of health.
- van Dijk, L., Otters ,H.B. & Schuit, A.J. (2006). Moderately overweight and obese patients in general practice: a population based survey. *BMC Family Practice*, 7, 43.
- von Uexküll, T. (2002). *Psychosomatische Medizin* (6th ed.) München: Urban & Fischer.
- Visser, F., Hiddink, G., Koelen, M., van Binsbergen, J., Tobi, H. & van Woerkum, C. (2008). Longitudinal changes in GPs' task perceptions, self-efficacy, barriers and practices of nutrition education and treatment of overweight. *Family Practice*, 25, i105–i111.
- Wabitsch, M. (2000). Adipositas im Kindes- und Jugendalter. Empfehlungen einer USamerikanischen Expertengruppe zur Diagnostik und Therapie. *Klinische Pädiatrie*, 5, 287- 296.
- Wadden, T.A. (1993). Treatment of obesity by moderate and severe caloric restriction. Results of clinical research trials. *Annals of Internal Medicine*, 119, 688-693.
- Wadden, T.A. & Sarwer, D.B. (1999). Behavioral treatment of obesity: new approaches to an old disorder. In D.J. Goldstein (Ed) *The Management of Eating Disorders and Obesity* (pp.173-199). Humana Press Inc.: Totowa.
- Wadden, T., Anderson, D.A., Foster, G.D., Bennet, A., Steinberg, C. & Sarwer, D.B. (2000). Obese Women's Perceptions of Their Physicians' Weight Management Attitudes and Practices. *Archives of Family Medicine*, 9(9), 854-860.

- Walcott-McQuigg, J.A. (1995). The relationship between stress and weight-control behavior in African-American women. *Journal of the National Medical Association*, 87(6), 427-32.
- Wang, Y., Beydoun, M.A., Liang, L., Caballero, B. & Kumanyika, S.K. (2008). Will All Americans Become Overweight or Obese? Estimating the Progression and Cost of the US Obesity Epidemic, *Obesity*, 16, 2323-2330.
- Ware, J.Jr., Kosinski, M. & Keller S.D. (1996). A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. *Medical Care*, 34(3), 220-233.
- Wee, C.C., Davis, R.B. & Hamel, M.B. (2008), Comparing the SF-12 and SF-36 health status questionnaires in patients with and without obesity. *Health and Quality of Life Outcomes*, 6, 11
- Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S. & Rosenbaum, R.M. (1971). Perceiving the causes of success and failure. In E.E. Jones et al. (Eds.) *Attribution: Perceiving the causes of behaviour*. Morristown, NJ: General Learning Press.
- Weinstein, N.D. (2003). Exploring the links between risk perceptions and preventive health behaviour. In J. Suls & K. Wallston (Eds.) *Social-psychological foundations of health and illness* (pp.22-53). Oxford, UK: Blackwell.
- Weinstein, S.E., Shide, D.J. & Rolls, B.J. (1997). Changes in food intake in response to stress in men and women: psychological factors. *Appetite*, 28(1), 7-18.
- Weintraub, M. (1992). Long-term weight control study I-VII. *Clinical Pharmacology and Therapeutics*, 51, 642-646.
- Whitlock, E.P., Orleans, C.T., Pender, N. & Allan, J. (2002). Evaluating primary care behavioral counseling interventions: an evidence-based approach. *American Journal of Preventive Medicine*, 22, 267-284.
- WHO (1998). *Obesity: preventing and managing the global epidemic: report of a WHO consultation*. Genf.
- WHO (2006). Regionalbüro für Europa. *Europäische Charta zur Bekämpfung der Adipositas*. Kopenhagen.
- Wiesemann, A., Barlet, J., Engeser, P., Kuth, N. & Müller-Bühl, U. (2006). Adipositas: Verhaltensorientierte Beratungsstrategien für die Hausarztpraxis. *Zeitschrift für Allgemeinmedizin*, 82, 103-107.
- Wiesner, J. (2009). *Die Check-up 35-Untersuchung übergewichtiger Patientinnen und Patienten in der Hausarztpraxis*. Dissertation an der Charité- Universitätsmedizin Berlin. http://www.diss.fu-berlin.de/diss/receive/FUDISS_thesis_000000011871 (Assessed 29th august 2010)

- Willett, W.C. (2002). Balancing life-style and genomics research for disease prevention. *Science*, 296(5568), 695–698.
- Williamson, D.F., Pamuk, E., Thun, M., Flanders, D., Byers, T. & Heath, C. (1995). Prospective study of intentional weight loss and mortality in never-smoking overweight US white women aged 40-64 years. *American Journal of Epidemiology*, 141, 1128-1141.
- Wilson, G.T. & Brownell, K.D. (2002). Behavioral treatment for obesity. In: C.G. Fairburn & K.D. Brownell (Eds) *Eating disorders and obesity. A comprehensive handbook* (2nd ed.), pp.524- 528). New York: Guilford.
- Wing, R.R. (1998). Behavioral approaches to the treatment of obesity. In: G.A. Bray, C. Bouchard & W.P.T. James (Eds.). *Handbook of obesity* (pp. 855-873). New York: Dekker.
- Wing, R.R. (2002). Behavioral weight control. In T.A. Wadden & A.J. Stunkard (Eds.). *Handbook of obesity treatment* (pp. 301-316). New York: Guilford.
- Wing, R.R. & Phelan, S. (2005). Long-term weight loss maintenance. *American Journal of Clinical Nutrition*, 82, 222S-225S.
- Whitaker, R.C., Wright, J.A., Pepe, M.S., Seidel, K.D. & Dietz, W.H. (1997). Predicting obesity in young adulthood from childhood and parental obesity. *New England Journal of Medicine*, 337, 869-873.
- Winkler, J. (1998). Die Messung des sozialen Status mit Hilfe eines Index in den Gesundheitssurveys der DHP. In W. Ahrens, B.M. Bellach & K.H. Jöckel (Eds.). *Messung soziodemographischer Merkmale in der Epidemiologie* (pp. 69-74), RKI-Schriften; 1/98 MMW Medizin Verlag.
- Wirth, A. (2002). *Adipositas. Epidemiologie, Ätiologie, Folgekrankheiten, Therapie [Obesity. Epidemiology, etiology, consequences, therapy]* (2nd ed.). Heidelberg: Springer.
- Wollard, J., Burke, V. & Beilin, L.J. (2003). Effects of general practice-based nurse counseling on ambulatory blood pressure and anti hypertensive drug prescription in patients at increased risk of cardiovascular disease. *Journal of Human Hypertension*, 17, 689–95.
- Wood, D.A., Kotseva, K., Connolly, S., Jennings, C., Mead, A., Jones, J., Halden, A., De Bacquer, D., Collier, T., De Backer, G. & Faergeman, O. (2008). Nurse- coordinated multidisciplinary, family based cardiovascular disease prevention programme (EUROACTION) for patients with coronary heart disease and asymptomatic individuals at high risk of cardiovascular disease: a paired, cluster- randomised controlled trial. *Lancet*, 371, 1999- 2012.
- Wren, A.M., Seal, L.J., Cohen, M.A., Brynes, A.E., Frost, G.S., Murphy, K.G., Dhillon, W.S., Ghatei, M.A. & Bloom, S.R. (2001). Ghrelin enhances appetite and increases food intake in humans. *Journal of Clinical Endocrinology and Metabolism*, 86, 5992.

- Yancy, W.S., Jr., Olsen, M.K., Westman, E.C., Bosworth, H.B., &Edelman, D. (2002). Relationship between obesity and health-related quality of life in men. *Obesity Research*, 10(10), 1057-1064.
- ZI (2008). Zentralinstitut für die kassenärztliche Versorgung (Central Research Institute of Ambulatory Health Care in Germany). *Hochrechnung zur Akzeptanz von Gesundheitsuntersuchungen und Krebsfrüherkennungsuntersuchungen bei gesetzlich Versicherten*.
http://www.ziberlin.de/k_frueh_prog/downloads/Akzeptanz_KFU_GU_FOBT.pdf
(Accessed December 18, 2008)
- Zimmerli, L., Ramseier, E., Hengstler, P., Gyr, N. & Battegay, E. (2004). Der Check-up 35 aus Sicht des Patienten-„open“ and „hidden“ Agenda. *Schweizerisches Medizinisches Forum*, 4, 196-199.
- Zuzelo, P.R. & Seminara, P. (2006). Influence of registered nurses' attitudes toward bariatric patients on educational programming effectiveness. *Journal of Continuing Education in Nursing*, 37, 65–73.

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28. März 2007

Informationen an die Allgemeinarztpraxen zur Studie 'Medizinische Prävention in der Hausarztpraxis: Die Gesundheitsuntersuchung bei Übergewichtigen'

Sehr geehrte Frau Kollegin, sehr geehrter Herr Kollege,

Mit der vorliegenden Studie sollen Möglichkeiten und Grenzen der hausärztlichen Präventionsberatung anhand der Check-up Untersuchung (Gesundheitsuntersuchung ab 35 Jahre) untersucht werden.

Die Studie hat insbesondere das Ziel, die Auswirkungen ärztlicher Präventionstätigkeit am Beispiel des medizinischen Risikofaktors Übergewicht anlässlich einer hausärztlichen Gesundheitsberatung im zeitlichen Verlauf von 2 Jahren zu untersuchen.

Wie läuft die Studie ab?

Wir möchten Sie bitten, im kommenden II. Quartal 2007 jeden übergewichtigen Patienten (BMI >25), der in Ihre Praxis zu einer Konsultation kommt, von der Möglichkeit der Gesundheitsuntersuchung (GU) und der wissenschaftlichen Evaluation zu unterrichten. Im weiteren Verlauf bitten wir Sie bei allen Patienten, die sich zur Studienteilnahme bereit erklärt haben, eine GU zu realisieren.

Diese Präventionsleistung, die unabhängig von der Studie auf der Grundlage der Gesetzlichen Krankenversicherung (GKV) abgerechnet werden kann, möchten wir mit einer Erfassung der Gesundheitsdaten und einer schriftlichen Befragung der Patienten begleiten. Zusätzlich sollen Arzt- Patientengespräche auf Tonband aufgezeichnet werden, die Sie im Rahmen der Check up Untersuchung führen. Dabei kann nicht ausgeschlossen werden, dass Gespräche durch die Tonbandaufzeichnung beeinflusst werden. Ziel dieser Aufzeichnungen ist es, verschiedene Gesprächstypen zu identifizieren. Im Verlauf dieses Jahres möchten wir Sie abschließend bitten, für eine mündliche Befragung zu Verfügung zu stehen (persönliches Gespräch mit einem Mitarbeiter der Forschungsgruppe).

Es ist vorgesehen, die Check-up Untersuchung und die Befragungen der Patienten im Rahmen der Studie nach zwei Jahren zu wiederholen, sodass Sie im II. Quartal 2009 lediglich gebeten werden, erneut eine Gesundheitsuntersuchung bei den Studienpatienten vorzunehmen.

Die Studie, diese Arztinformation und die Einwilligungserklärung wurden von einer unabhängigen Ethikkommission begutachtet und positiv beurteilt.

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Datenschutz

Welche Daten werden gespeichert?

Die Datenerhebung erfolgt zum Zweck des o.g. Studienziels. Für die Studie werden folgende Datenquellen erfasst:

- ⇒ Tonband- Aufzeichnung von Arzt-Patient- Gesprächen, die Sie im Rahmen der Check- up Untersuchung für diese Studie realisiert haben.
- ⇒ Mündliches Interview in einem vertraulichen Einzelgespräch, das ein Mitarbeiter des Instituts für Allgemeinmedizin nach Realisierung der Gesundheitsuntersuchung durchführt.

Alle Datensätze werden nach Pseudonymisierung (siehe unten) in der Kenndatenbank gespeichert, die sich in am Institut für Allgemeinmedizin der Charité befindet.

Was passiert mit den Daten?

Die *medizinischen Daten* Ihrer Patienten werden elektronisch auf speziellen Erhebungsbögen in eine Datenbank eingegeben. Die Speicherung dieser Daten erfolgt auf einem zentralen Rechner des Instituts für Allgemeinmedizin CCM. Alle an der Datenerhebung beteiligten Personen sind zur Verschwiegenheit verpflichtet.

Die erhobenen Daten enthalten keine Namen bzw. Adressen. Stattdessen versieht der Studienarzt die Studiendaten mit einer Codenummer (Pseudonymisierung der Daten). Auf den Codeschlüssel, der es erlaubt, die studienbezogenen Daten den Patienten in Verbindung zu bringen, haben nur Sie und Ihre Mitarbeiter Zugriff.

Tonbandaufzeichnungen werden analog der Codenummer von einer zur Verschwiegenheit verpflichteten Person des Instituts für Allgemeinmedizin zeitnah in ein Datenprogramm abgeschrieben. Anschließend werden die Tonbänder gelöscht.

Sie haben das Recht, alle gespeicherten Informationen Ihrer Patienten einzusehen. Die Daten sollen für die Durchführung des Forschungsprojektes langfristig gespeichert werden. Nach Abschluss der wissenschaftlichen Projekte wird die Verbindung zwischen den persönlichen und den medizinischen Daten Ihrer Patienten gelöscht, so dass ein Rückschluss auf einzelne Personen nicht mehr möglich ist. Die Ergebnisse des Forschungsprojekts werden in Fachzeitschriften publiziert.

Freiwilligkeit der Teilnahme

Die Teilnahme an der Studie erfolgt freiwillig. Sie können Ihre Einwilligung jederzeit und ohne Angabe von Gründen widerrufen. Ihnen entstehen durch Nichtteilnahme und Widerruf keine Nachteile.

Weitere Informationen

In der Anlage legen wir Ihnen das Studienprotokoll des Forschungsvorhabens bei.

Haben Sie noch Fragen? Dann wenden Sie sich bitte an das Institut für Allgemeinmedizin, Universitätsmedizin Berlin (Tel. 450 514 082, E-Mail allgemein.medizin@charite.de).

.....
Unterschrift des Institutsleiters
Prof. Dr. V. Braun

.....
Unterschrift des Projektleiters
Dr. Med. Ch. Heintze MPH

Appendix B: GP's declaration of consent



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Einverständniserklärung für die Studienärzte

Medizinische Prävention in der Hausarztpraxis: Die Gesundheitsuntersuchung bei Übergewichtigen

Ich wurde ausführlich vom Studienleiter über Wesen und Bedeutung der o.g. Studie schriftlich und mündlich aufgeklärt.

Ich erkläre mein Einverständnis zur Aufzeichnung eines mündlichen Gesprächs und zur Verarbeitung meiner Daten im Rahmen des Studienvorhabens sowie zur Übermittlung meiner pseudonymisierten Daten an das Institut für Allgemeinmedizin, Charité Universitätsmedizin Berlin. Meine Teilnahme an dem aufgezeichneten Gespräch ist freiwillig und kann jederzeit von mir ohne Angabe von Gründen widerrufen werden, ohne dass mir daraus Nachteile entstehen.

Information und Einwilligung zum Datenschutz

Die Speicherung, Auswertung und Weitergabe der studienbezogenen Daten erfolgt nach den gesetzlichen Bestimmungen und setzt vor Teilnahme an der Studie folgende freiwillige Einwilligung voraus:

Ich erkläre mich damit einverstanden, dass im Rahmen dieser Studie Daten auf elektronischen Datenträgern ohne Namensnennung aufgezeichnet, gespeichert, verarbeitet und weitergegeben werden.

Nachname: _____ Vorname: _____

_____/_____/_____

Ort

Datum

Unterschrift der/ des Ärztin/ Arztes

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Appendix B continued

- 2 -

Bestätigung der/des aufklärenden Studienleiters

Der Kollege / die Kollegin wurde von mir über Wesen und Bedeutung der Teilnahme an der o.g. Studie in mündlicher und schriftlicher Form aufgeklärt. Ihre/ seine Fragen habe ich zu ihrer/ seiner Zufriedenheit beantwortet. Der Kollege / die Kollegin hat ohne Zwang die Einwilligung in die Studienteilnahme erklärt. Ein Exemplar der Einwilligungserklärung wurde ihr/ ihm ausgehändigt.

Name des aufklärenden Studienleiters: _____

_____/_____/_____

Ort

Datum

Unterschrift der/ des Studienleiters

ZSUIEinverständniserklärung_Ärzte.doc



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Studieninformationen für Patientinnen und Patienten

Datum

Medizinische Prävention in der Hausarztpraxis: 'Die Gesundheitsuntersuchung bei Übergewichtigen'

gefördert vom Bundesministerium für Forschung und Bildung

Sehr geehrte Patientin, sehr geehrter Patient,
Ihre behandelnde Ärztin/ Ihr behandelnder Arzt bietet Ihnen heute die Teilnahme an der Studie zu Gesundheitsberatung in der Hausarztpraxis an. Hierzu erhalten Sie im folgenden weitere Informationen.

Bitte lesen Sie diese Patienteninformation sorgfältig durch. Fragen Sie Ihre behandelnde Ärztin/ Ihren behandelnden Arzt, wenn Sie etwas nicht verstehen oder wenn Sie zusätzlich etwas wissen möchten. Lassen Sie sich ausreichend Zeit für Ihre Entscheidung.

Diese Studie, die Patienteninformation und die Einwilligungserklärung wurden von einer unabhängigen Ethikkommission begutachtet und positiv beurteilt.

Was ist das Ziel dieser Studie?

Die Studie hat das Ziel, die Auswirkungen ärztlicher Präventionstätigkeit am Beispiel des medizinischen Risikofaktors Übergewicht anlässlich einer hausärztlichen Gesundheitsberatung im zeitlichen Verlauf von 2 Jahren zu untersuchen.

Wie läuft die Studie ab?

Ihr Hausarzt bietet Ihnen an, an einer Check-up Untersuchung teilzunehmen, die jeder Krankenversicherte ab dem 35 Lebensjahr alle zwei Jahre durchführen lassen kann. Der Check-up beinhaltet neben der Erfassung der gesundheitlichen Vorgeschichte die jetzige Befindlichkeit sowie eine Blut- und Urinuntersuchung. Mit ihrem Hausarzt werden die Ergebnisse der Untersuchung nach Erhalt der Resultate eingehend besprochen.

Diese Regelleistung der Gesetzlichen Krankenversicherung (GKV), die Ihr Hausarzt unabhängig von der Studie realisiert, wird zusätzlich durch eine Erfassung Ihrer Gesundheitsdaten, einer schriftlichen Befragung, der Tonband- Aufzeichnung eines Arzt- Patientengesprächs während der Check up Untersuchung und für einige Studienteilnehmer durch eine mündliche Befragung begleitet (persönliches Gespräch mit einem Mitarbeiter der Forschungsgruppe).

Es ist geplant, die Check-up Untersuchung und die Befragungen im Rahmen der Studie in zwei Jahren zu wiederholen, wenn Sie erneut eine Gesundheitsuntersuchung bei Ihrem Hausarzt in Anspruch nehmen.
- bitte wenden -

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Gibt es Risiken, Beschwerden oder Begleiterscheinungen?

Durch die Teilnahme an der Studie sind keine Risiken oder Begleiterscheinungen zu erwarten. Die im Rahmen der Check- up Untersuchung vorgesehene Blutuntersuchung wird (unabhängig von dieser Studie) für die gesetzlich festgelegten Laborparameter durchgeführt. Ihr Hausarzt wird, wie bei diesen Eingriffen üblich, die notwendige Sorgfaltspflicht erfüllen.

Welche Vorteile bringt die Studie für Sie?

Durch die Check- up Untersuchung werden Sie über Ihren aktuellen Gesundheitszustand und eventuelle medizinische Risikofaktoren im Rahmen der Gesundheitsuntersuchung beraten. Abhängig von den jeweiligen Ergebnissen besteht die Möglichkeit, die eigene Gesundheit zu verbessern und mögliche Risikofaktoren zukünftig zu verringern oder zu vermeiden. Diese Möglichkeit ist vollkommen unabhängig von der Teilnahme an der Studie.

Teilnahmebedingungen

Sie können an der Studie nur teilnehmen, wenn Sie durch eine gesetzliche Krankenversicherung die Voraussetzung zur Teilnahme an der Check- up Untersuchung erfüllen und schriftlich Ihre Einwilligung erklären.

Datenschutz

Welche Daten werden über Sie gespeichert?

Die Datenerhebung erfolgt zum Zweck des o.g. Studienziels. Für die Studie werden einzelne Arten von Datensätzen gesammelt:

- ⇒ Ihre *Stammdaten* beinhalten Name, Vorname, Geburtsname, Geburtsdatum und Geburtsort. Diese Daten sind nur Ihrer Ärztin/ Ihrem Arzt und einem mit der Eingabe betrauten Mitarbeiter des Instituts für Allgemeinmedizin bekannt, der zuvor eine Schweigepflichtserklärung unterschrieben hat.
- ⇒ Ihre Angaben in zusätzlichen *Fragebögen*, die Sie im Rahmen der Studie ausgefüllt haben, diese Daten sind nur dem mit der Eingabe betrauten Mitarbeiter des Instituts für Allgemeinmedizin bekannt, der zuvor eine Schweigepflichtserklärung unterschrieben hat.
- ⇒ Ihre *medizinischen Daten* enthalten Angaben zum Ergebnis der Gesundheitsuntersuchung, die eine Cholesterinbestimmung im Blut, eine Urinuntersuchung und die Beschreibung der individuellen Anamnese und Begleitumstände umfasst. Diese Daten sind nur Ihrer Ärztin/ Ihrem Arzt und einem mit der Eingabe betrauten Mitarbeiter des Instituts für Allgemeinmedizin bekannt.
- ⇒ Ein Gespräch, das im Rahmen der Check- up Untersuchung Ihr Hausarzt mit Ihnen führt, wird auf Tonband aufgezeichnet.
- ⇒ Optional für einzelne Studienteilnehmer: Mündliche Angaben in einem vertraulichen Einzelgespräch, das ein Mitarbeiter des Instituts für Allgemeinmedizin nach Realisierung der Gesundheitsuntersuchung durchführen möchte.

Alle Datensätze werden nach Pseudonymisierung (siehe unten) in der Kenndatenbank gespeichert, die sich in am Institut für Allgemeinmedizin der Charité befindet.

Was passiert mit Ihren Daten?

Ihre *medizinischen Daten* werden elektronisch auf speziellen Erhebungsbögen in eine Datenbank eingegeben. Die Speicherung dieser Daten erfolgt auf einem zentralen Rechner des Instituts für Allgemeinmedizin CCM. Alle an der Datenerhebung beteiligten Personen sind zur Verschwiegenheit verpflichtet. Auch die von Ihnen unterzeichnete Einwilligungserklärung zur

Teilnahme an dieser Studie wird am Institut für Allgemeinmedizin bis zum Ende der Studie aufbewahrt und erst dann vernichtet.

Alle erhobenen Daten enthalten nicht Ihren Namen oder Ihre Adresse. Stattdessen versieht der Studienarzt die Studiendaten mit einer Codenummer (Pseudonymisierung der Daten). Auf den Codeschlüssel, der es erlaubt, die studienbezogenen Daten mit Ihnen in Verbindung zu bringen, haben nur der Studienarzt und seine Mitarbeiter Zugriff. Der Code ergibt sich aus den Initialen Ihres Namens und ihres Geburtsdatums.

Tonbandaufzeichnungen werden analog der Codenummer von einer zur Verschwiegenheit verpflichteten Person des Instituts für Allgemeinmedizin zeitnah in ein Datenprogramm abgeschrieben. Anschließend werden die Tonbänder gelöscht.

Sie haben das Recht, alle über Sie gespeicherten Informationen einzusehen. Ihre Daten sollen für die Durchführung des Forschungsprojektes langfristig gespeichert werden. Nach Abschluss der wissenschaftlichen Projekte wird die Verbindung zwischen Ihren persönlichen und Ihren medizinischen Daten gelöscht, so dass kein Rückschluss auf ihre Person mehr möglich ist.

Die Studienergebnisse werden in Fachzeitschriften publiziert. Einzelne Angaben sind aufgrund der Anonymisierung nicht auf Ihre Person zurückzuführen, veröffentlicht werden nur Ergebnisse über alle Studienteilnehmer bzw. Gruppen von Teilnehmern.

Freiwilligkeit der Teilnahme

Die Teilnahme an der Studie erfolgt freiwillig. Sie können Ihre Einwilligung jederzeit und ohne Angabe von Gründen widerrufen. Ihnen entstehen durch Nichtteilnahme und Widerruf keine Nachteile. Auch das Vertrauensverhältnis zwischen Ihnen und Ihrer Ärztin/ Ihrem Arzt nimmt keinen Schaden.

Weitere Informationen

Sollten zu irgendeinem Zeitpunkt während der klinischen Studie neue Erkenntnisse bekannt werden, die Ihre Bereitschaft zur weiteren Teilnahme beeinflussen könnten, werden Sie von Ihrer Ärztin/ Ihrem Arzt darüber unterrichtet.

Haben Sie noch Fragen? Dann wenden Sie sich bitte an das Institut für Allgemeinmedizin, Universitätsmedizin Berlin (Tel. 450 514 082, E-Mail allgemein.medizin@charite.de).

Unterschrift der Projektleitung:

Dr. med. Ch Heintze

Unterschrift der Institutsleitung:

Prof. Dr. med. V. Braun

Appendix D: Patient's declaration of consent



CharitéCentrum für Human- und Gesundheitswissenschaften | ZHGB

Charité | Campus Mitte | 10098 Berlin

Institut für Allgemeinmedizin

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Einverständniserklärung für Patientinnen und Patienten

Medizinische Prävention in der Hausarztpraxis: Die Gesundheitsuntersuchung bei Übergewichtigen

Ich wurde ausführlich durch die schriftliche Patienteninformation vom (DATUM) und von meiner Ärztin/ meinem Arzt über Wesen und Bedeutung der o.g. Studie schriftlich und mündlich aufgeklärt. Ich habe alle Punkte der Patienteninformation zur Kenntnis genommen und verstanden. Alle Fragen hat meine Ärztin/ mein Arzt in verständlicher Weise beantwortet. Ein Exemplar der schriftlichen Patienteninformation und die Kopie der unterschriebenen Einwilligungserklärung habe ich erhalten.

Ich erkläre mein Einverständnis zur Teilnahme an der o.g. Studie, zur Verarbeitung meiner Daten im Rahmen des Studienvorhabens sowie zur Übermittlung meiner pseudonymisierten Daten an das Institut für Allgemeinmedizin, Charité Universitätsmedizin Berlin. Meinen behandelnden Arzt entbinde ich seiner Schweigepflicht ausschließlich bezüglich der für o.g. Studie relevanten Angaben. Einer Tonbandaufzeichnung des Gesprächs im Rahmen der Check up- Untersuchung stimme ich zu.

Meine Teilnahme an der Studie ist freiwillig und kann jederzeit von mir ohne Angabe von Gründen widerrufen werden, ohne dass mir daraus Nachteile entstehen.

Information und Einwilligung zum Datenschutz

Bei wissenschaftlichen Studien werden persönliche Daten und medizinische Befunde über Sie erhoben. Die Speicherung, Auswertung und Weitergabe dieser studienbezogenen Daten erfolgt nach den gesetzlichen Bestimmungen und setzt vor Teilnahme an der Studie folgende freiwillige Einwilligung voraus:

Ich erkläre mich damit einverstanden, dass im Rahmen dieser Studie erhobene Daten auf Fragebögen und elektronischen Datenträgern ohne Namensnennung aufgezeichnet, gespeichert, verarbeitet und weitergegeben werden.

Nachname: _____ Vorname: _____

_____/_____/_____
Ort Datum Unterschrift der/ des Patientin/ Patienten

CHARITÉ - UNIVERSITÄTSMEDIZIN BERLIN
Gliedkörperschaft der Freien Universität Berlin und der Humboldt-Universität zu Berlin
Charitéplatz 1 | 10117 Berlin | Telefon +49 30 450-50 | www.charite.de

Bestätigung der/des aufklärenden Ärztin/Arztes

Die Patientin/ der Patient wurde von mir über Wesen und Bedeutung der Teilnahme an der o.g. Studie in mündlicher und schriftlicher Form aufgeklärt. Ihre/ seine Fragen habe ich zu ihrer/ seiner Zufriedenheit beantwortet. Die Patientin/ der Patient hat ohne Zwang die Einwilligung in die Studienteilnahme erklärt. Ein Exemplar der Patienteninformation und der Einwilligungserklärung wurde ihr/ ihm ausgehändigt.

Name der/ des aufklärenden Ärztin/ Arztes: _____

_____/_____/_____
Ort Datum Unterschrift der/ des aufklärenden Ärztin/ Arztes

Appendix E: Questionnaire regarding patient's socio-demographic information



Präventionsberatung in der Hausarztpraxis

Sehr geehrte/r Patient/in,
 vielen Dank, dass Sie sich bereit erklärt haben, an unserer Studie teilzunehmen.
 Wir bitten Sie, den folgenden Fragebogen auszufüllen. Uns interessiert Ihre persönliche Meinung zur Prävention, es gibt keine falschen Antworten. Sie werden für die Bearbeitung des Bogens ca. 15 Minuten benötigen. Ihre Angaben werden streng anonym behandelt.
 Sie können den ausgefüllten Fragebogen in den beiliegenden Briefumschlag stecken. Bitte werfen Sie anschließend den Umschlag in die verschlossene Kiste.

Bei Fragen können Sie sich jederzeit an uns wenden:

Charité- Universitätsmedizin Berlin CCM, Institut für Allgemeinmedizin
 Dr. med. Christoph Heintze MPH, Dipl.- Psych. Ulrike Metz
 Schumannstraße 20/ 21, 10117 Berlin
 Tel: 030- 450 514 225, Ulrike.metz@charite.de

Bitte tragen Sie folgenden Personencode ein:

Geburtsjahr (zweistellig)	Geburtsmonat (zweistellig)	1. Buchstabe Ihres Nachnamens	Letzter Buchstabe Ihres Nachnamens	Anzahl der Buchstaben Ihres Nachnamens
z.B. „53“ (=1953)	z.B. „11“ (=Nov.)			

Basisfragebogen

Datum _____

Geschlecht männlich weiblich

Alter: _____

Bitte tragen Sie Ihre Körpergröße und Gewicht ein.

Körpergröße: _____

Gewicht: _____

Haben Sie schon einmal an einer Gesundheitsuntersuchung (Check up) teilgenommen? ja Nein

Appendix E continued

Wenn ja, wann war Ihre letzte Untersuchung (Jahr/Monat)? : _____

Wie häufig haben Sie an einer solchen Untersuchung teilgenommen? : _____

Haben Sie schon einmal an einer Krebsvorsorgeuntersuchung
(Hämokkult/Blut im Stuhl) teilgenommen? ja Nein

Wenn ja, wann war Ihre letzte Untersuchung (Jahr/Monat)? : _____

Wie häufig haben Sie an einer solchen Untersuchung teilgenommen? : _____

In welchem Land sind Ihre Eltern geboren?

Mutter

In Deutschland

In einem anderen Land

Welches ? _____

Vater

In Deutschland

In einem anderen Land

Welches ? _____

Ist Deutsch Ihre Muttersprache ? ja Nein

Seit wann leben Sie hauptsächlich in Deutschland ?

Seit meiner Geburt Seit (Jahreszahl) _____

Wie ist Ihr Familienstand ?

Ledig

Verheiratet

geschieden

verwitwet

getrennt lebend

Welchen Schulabschluss haben Sie? (bitte nur den höchsten ankreuzen)

Ohne Abschluss

Hauptschule/ Volksschule

Realschule (mittlere Reife)

Polytechnische Oberschule

Fachhochschulreife

Abitur

Anderer Schulabschluss:

Appendix E continued

**Haben Sie eine abgeschlossene Berufsausbildung oder Hochschulausbildung?
Falls Sie mehrere Abschlüsse haben, nennen Sie nur den höchsten!**

- | | |
|--|--------------------------|
| Lehre (beruflich-betriebliche Ausbildung) | <input type="checkbox"/> |
| Berufsfachschule, Handelsschule (beruflich-schulische Ausbildung) | <input type="checkbox"/> |
| Fachschule (z.B. Meister-, Technikerschule, Berufs- oder Fachakademie) | <input type="checkbox"/> |
| Fachhochschule, Ingenieurschule | <input type="checkbox"/> |
| Universität, Hochschule | <input type="checkbox"/> |
| Anderen Ausbildungsabschluss | <input type="checkbox"/> |
| Kein beruflicher Abschluss (und nicht in der Ausbildung) | <input type="checkbox"/> |

**Wie hoch ist das monatliche Haushaltseinkommen, d.h. das Nettoeinkommen, das Sie
(alle Mitglieder Ihres Haushaltes) nach Abzüge der Steuern und Sozialabgaben haben?**

- | | |
|-------------------|--------------------------|
| Unter 1.000 € | <input type="checkbox"/> |
| 1000 bis 1499 € | <input type="checkbox"/> |
| 1500 bis 1999 € | <input type="checkbox"/> |
| 2000 bis 2499 € | <input type="checkbox"/> |
| 2500 € bis 2999 € | <input type="checkbox"/> |
| 3000 € bis 3999 € | <input type="checkbox"/> |
| 4000 € oder mehr | <input type="checkbox"/> |

**In welcher beruflichen Stellung sind Sie hauptsächlich derzeit bzw. (falls nicht mehr
berufstätig) waren Sie zuletzt beschäftigt?**

- | | |
|---|--------------------------|
| Ungelernter Arbeiter | <input type="checkbox"/> |
| Facharbeiter
Beamter einfacher Dienst
Angestellter mit einfacher Tätigkeit | <input type="checkbox"/> |
| Meister oder Polier | <input type="checkbox"/> |
| Beamter mittlerer Dienst,
Angestellter mit qualifizierter Tätigkeit | <input type="checkbox"/> |
| Selbständig mit maximal 9 Angestellten
Beamter gehobener Dienst
Angestellter mit hochqualifizierter Tätigkeit | <input type="checkbox"/> |
| freie Berufe
selbständige Akademiker
Beamter höherer Dienst
Angestellter mit Führungsaufgaben, | <input type="checkbox"/> |
| Selbständig mit mind. 10 Angestellten | <input type="checkbox"/> |
| Anderer Status: wenn ja, welcher | <input type="checkbox"/> |

Appendix F: PSS – Perceived Stress Scale (study one)

Cohen, S., Kamarck, T. & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.

Dieser Fragebogen bezieht sich auf Ihren wahrgenommenen Stress im letzten Monat!

Frage	Nie	Fast nie	Manchmal	Oft	Sehr oft
1. Wie oft haben Sie sich im vergangenen Monat aufgeregt, weil etwas Unerwartetes geschehen ist?					
2. Wie oft haben Sie im vergangenen Monat gefühlt, dass Sie nicht fähig waren, wichtige Dinge Ihres Lebens im Griff zu haben?					
3. Wie oft haben Sie sich im vergangenen Monat nervös oder gestresst gefühlt?					
4. Wie oft haben Sie im vergangenen Monat gefühlt, dass Sie irritierende Schwierigkeiten erfolgreich gemeistert haben?					
5. Wie oft haben Sie im vergangenen Monat gefühlt, dass Sie wichtige Veränderungen in Ihrem Leben mit gutem Ergebnis bewältigt haben?					
6. Wie oft haben Sie sich im vergangenen Monat sicher gefühlt im Umgang mit Ihren persönlichen Schwierigkeiten?					
7. Wie oft hatten Sie im vergangenen Monat das Gefühl, dass in Ihrem Leben alles so ging, wie Sie es wünschten?					
8. Wie oft hatten Sie im vergangenen Monat das Gefühl, dass Ihnen all die Dinge, die Sie tun mussten, über den Kopf wuchsen?					
9. Wie oft hatten Sie im vergangenen Monat das Gefühl, dass Sie die Störungen in Ihrem Leben unter Kontrolle hatten?					
10. Wie oft hatten Sie im vergangenen Monat das Gefühl, dass Sie alles im Griff hatten?					
11. Wie oft haben Sie sich im vergangenen Monat geärgert, weil Sie Dinge, die geschehen sind, nicht beeinflussen konnten?					
12. Wie oft haben Sie im vergangenen Monat bemerkt, dass Sie an Dinge dachten, die Sie noch erledigen mussten?					
13. Wie oft hatten Sie im vergangenen Monat das Gefühl, dass Sie Kontrolle darüber hatten, wie Sie Ihre Zeit verbringen?					
14. Wie oft hatten Sie im vergangenen Monat das Gefühl, dass sich die Schwierigkeiten so hoch türmten, dass Sie sie nicht mehr bewältigen konnten?					

Appendix G: KKG – questionnaire regarding health-related locus of control (study two)

Lohaus, A. & Schmitt, G.M. (1989). *Fragebogen zur Erhebung von Kontrollüberzeugungen zu Krankheit und Gesundheit (KKG). Handanweisung*. Göttingen: Hogrefe.

Im Folgenden finden Sie Aussagen, die Ihr körperliches Wohlbefinden betreffen. Bitte lesen Sie jede Aussage sorgfältig durch und entscheiden Sie, in welchem Ausmaß die Aussage auf Sie zutrifft oder nicht zutrifft. Sie haben dabei sechs verschiedene Antwortmöglichkeiten.

	Trifft sehr zu	Trifft zu	Trifft etwas zu	Trifft eher nicht zu	Trifft nicht zu	Trifft gar nicht zu
1. Wenn ich mich körperlich nicht wohl fühle, habe ich mir das selbst zuzuschreiben.						
2. Wenn ich Beschwerden habe, suche ich einen Arzt auf.						
3. Ob meine Beschwerden länger andauern, hängt vor allem vom Zufall ab.						
4. Wenn ich mich körperlich wohlfühle, dann verdanke ich dies vor allem den Ratschlägen und Hilfen anderer.						
5. Wenn bei mir Beschwerden auftreten, dann habe ich nicht genügend auf mich aufgepasst.						
6. Wenn ich Beschwerden habe, frage ich andere um Rat.						
7. Körperliche Beschwerden lassen sich nicht beeinflussen: Wenn ich Pech habe, sind sie einfach da.						
8. Wenn ich auf mich achte, bekomme ich keine Beschwerden.						
9. Wenn das Schicksal es so will, dann bekomme ich körperliche Beschwerden.						
10. Wenn bei mir Beschwerden auftreten, bitte ich einen Fachmann, mir zu helfen.						
11. Ob es mir gut geht oder nicht, lässt sich nicht beeinflussen.						
12. Wenn ich keinen guten Arzt habe, habe ich häufiger unter Beschwerden zu leiden.						
13. Ob Beschwerden wieder verschwinden, hängt vor allem davon ab, ob ich Glück habe oder nicht.						
14. Ich kann Beschwerden vermeiden, indem ich mich von Anderen beraten lasse.						
15. Ich verdanke es meinem Schicksal, wenn meine Beschwerden wieder verschwinden.						
16. Wenn ich genügend über mich weiß, kann ich mir bei Beschwerden selbst helfen.						

Appendix G continued

	Trifft sehr zu	Trifft zu	Trifft etwas zu	Trifft eher nicht zu	Trifft nicht zu	Trifft gar nicht zu
17. Wenn ich Beschwerden habe, weiß ich, dass ich mir selbst helfen kann.						
18. Es liegt an mir, wenn meine Beschwerden nachlassen.						
19. Ich bin der Meinung, dass Glück und Zufall eine große Rolle für mein körperliches Befinden spielen.						
20. Wenn ich mich unwohl fühle, wissen andere am besten, was mir fehlt.						
21. Es liegt an mir, mich vor Beschwerden zu schützen.						

Appendix H: Questionnaire regarding attributions (study two)

Fragebogen zu gesundheitsbezogenen Attributionen (in Anlehnung an Ogden et al., 2001; Ogden & Flanagan, 2008)

Im Folgenden geht es um Ihre Beurteilung der Zusammenhänge zum Körpergewicht.

- 1) **Wie schätzen Sie die Bedeutung Ihres Gewichts im Hinblick auf die folgenden möglichen Ursachen ein?**

Der Zusammenhang mit **genetischen** Ursachen ist

ausgeprägt eng mäßig gering ohne Zusammenhang

Der Zusammenhang mit **psychologischen** Ursachen ist

ausgeprägt eng mäßig gering ohne Zusammenhang

Der Zusammenhang mit **verhaltensbezogenen** Ursachen ist

ausgeprägt eng mäßig gering ohne Zusammenhang

Der Zusammenhang mit **sozialen** Ursachen ist

ausgeprägt eng mäßig gering ohne Zusammenhang

- 2) **Wie schätzen Sie die Relevanz folgender Personengruppen auf die Behandlung von Übergewicht ein?**

Die Bedeutung des **Hausarztes** empfinde ich

Sehr hoch hoch mäßig gering ohne Bedeutung

Die Bedeutung der **Familie** empfinde ich

Sehr hoch hoch mäßig gering ohne Bedeutung

Die Bedeutung eines **Partners** empfinde ich

Sehr hoch hoch mäßig gering ohne Bedeutung

Die Bedeutung einer **individuellen Ernährungsberatung** empfinde ich

Sehr hoch hoch mäßig gering ohne Bedeutung

Appendix I: RIAS - Roter Interaction Analysis System categories (study three)

Roter, D. & Larson, S. (2002). The Roter Interaction Analysis System (RIAS): utility and flexi-bility for analysis of medical interactions. *Patient Education and Counselling*, 46, 243–251.

Kategorien RIAS	Erklärungen
Aufgabenorientierte Kategorien	
Übergangswort/Trans	Übergangsworte, Transition
Anweisung/Struk/Orientierung	Orientierung und Anweisungen geben, Strukturierung
Check/Paraphrasien	Nachfragen, Paraphrasieren zum korrekten Verständnis
?wieder	Bitte nach Wiederholung des soeben Gesagtem
?verstehen	Verständnisfrage
?Meinung	Frage nach persönlicher Meinung des Patienten
[?][Med	Geschlossene Frage - medizinisch
[?][Thera	Geschlossene Frage – therapeutisch
[?][LeSt	Geschlossene Frage – Lebensstil/Sozialer Kontext
[?][PsS/Gef	Geschlossene Frage – Psychosozial/Gefühle
[?][andere	Geschlossene Frage - andere
?Med	Offene Frage - medizinisch
?Thera	Offene Frage – therapeutisch
?PsS/Gef	Offene Frage - Lebensstil/Sozialer Kontext
?LeSt	Offene Frage - Psychosozial/Gefühle
?andere	Offene Frage – andere
geben-Med	Übermitteln von Information - medizinisch
geben-Th	Übermitteln von Information - therapeutisch
geben-LeSt	Übermitteln von Information – Lebensstil/Sozialer Kontext
geben-PsS/Gef	Übermitteln von Information – Psychosozial/Gefühle
geben-andere	Übermitteln von Information - andere
C-Med/Thera	Empfehlung/Beratung – medizinisch, therapeutisch
C-LS/PS	Empfehlung/Beratung – Lebensstil/Sozialer Kontext, Psychosozial/Gefühle
?Leistung	Frage nach Leistung/Leistungsangeboten
unverst	unverständliche Äußerungen

Appendix J: Adapted version of RIAS coding scheme for instrumental behavior (study three)

Kode	Kode Kürzel
Risiko (Laborparameter, Risikofaktoren)	Risiko (Laborparameter, Risikofaktoren)
Fragen	Fragen
Biomedizinisch/Therapeutisch	Frage-med/thera-RISIKO
Lebenstil/Sozialer Kontext	Frage-LS-RISIKO
Psychosozial/Gefühle	Frage-PS-RISIKO
Übermitteln von Information	Übermitteln von Information
Biomedizinisch/Therapeutisch	geb-med/thera-RISIKO
Lebenstil/Sozialer Kontext	geb-LS-RISIKO
Psychosozial/Gefühle	geb-PS-RISIKO
Empfehlungen	Empfehlungen
Biomedizinisch/Therapeutisch	empf-med/thera-RISIKO
Lebenstil/Sozialer Kontext	empf-LS-RISIKO
Psychosozial/Gefühle	empf-PS-RISIKO
Ernährung	Ernährung
Fragen	Fragen
Biomedizinisch/Therapeutisch	Frage-med/thera-ERNA
Lebenstil/Sozialer Kontext	Frage-LS-ERNA
Psychosozial/Gefühle	Frage-PS-ERNA
Übermitteln von Information	Übermitteln von Information
Biomedizinisch/Therapeutisch	geb-med/thera-ERNA
Lebenstil/Sozialer Kontext	geb-LS-ERNA
Psychosozial/Gefühle	geb-PS-ERNA
Empfehlungen	Empfehlungen
Biomedizinisch/Therapeutisch	empf-med/thera-ERNA
Lebenstil/Sozialer Kontext	empf-LS-ERNA
Psychosozial/Gefühle	empf-PS-ERNA
Bewegung	Bewegung
Fragen	Fragen
Biomedizinisch/Therapeutisch	Frage-med/thera-BEW
Lebenstil/Sozialer Kontext	Frage-LS-BEW
Psychosozial/Gefühle	Frage-PS-BEW
Übermitteln von Information	Übermitteln von Information
Biomedizinisch/Therapeutisch	geb-med/thera-BEW
Lebenstil/Sozialer Kontext	geb-LS-BEW
Psychosozial/Gefühle	geb-PS-BEW
Empfehlungen	Empfehlungen
Biomedizinisch/Therapeutisch	empf-med/thera-BEW
Lebenstil/Sozialer Kontext	empf-LS-BEW
Psychosozial/Gefühle	empf-PS-BEW
Sonstige	Sonstige
Fragen	Fragen
Biomedizinisch/Therapeutisch	Frage-med/thera-sonst
Lebenstil/Sozialer Kontext	Frage-LS-sonst
Psychosozial/Gefühle	Frage-PS-sonst
Übermitteln von Information	Übermitteln von Information
Biomedizinisch/Therapeutisch	geb-med/thera-sonst
Lebenstil/Sozialer Kontext	geb-LS-sonst
Psychosozial/Gefühle	geb-PS-sonst
Empfehlungen	Empfehlungen
Biomedizinisch/Therapeutisch	empf-med/thera-sonst
Lebenstil/Sozialer Kontext	empf-LS-sonst
Psychosozial/Gefühle	empf-PS-sonst

Appendix K: BECCI – Behavior Change Counseling Index (study four)

Lane, C., Huws-Thomas, M., Rollnick, S., Hood, K., Edwards, K. & Robling, M. (2005). Measuring adaptations of motivational interviewing: The development and validation of the Behaviour Change Counseling Index (BECCI). *Patient Education and Counselling*, 56, 166-173.

D:\Documents and Settings\CLocal Settings\Temporary Internet Files\Content.IE5\GHUJLMMN\BECCI Scale Feb 2003[1].doc

Behaviour Change Counselling Index (BECCI)

BECCI is an instrument designed for trainers to score practitioners' use of Behaviour Change Counselling in consultations (either real or simulated). To use BECCI, circle a number on the scale attached to each item to indicate the degree to which the patient/practitioner has carried out the action described.

Before using BECCI, please consult the accompanying manual for a detailed explanation of how to score the items. As a guide while using the instrument, each number on the scale indicates that the action was carried out:

- 0. Not at all
- 1. Minimally
- 2. To some extent
- 3. A good deal
- 4. A great extent

The Topic: _____

Item	Score
1. Practitioner invites the patient to talk about behaviour change Not Applicable <input type="checkbox"/>	not at all 0 1 2 3 4 a great extent
2. Practitioner demonstrates sensitivity to talking about other issues	not at all 0 1 2 3 4 a great extent
3. Practitioner encourages patient to talk about current behaviour or status quo	not at all 0 1 2 3 4 a great extent
4. Practitioner encourages patient to talk about change	not at all 0 1 2 3 4 a great extent
5. Practitioner asks questions to elicit how patient thinks and feels about the topic	not at all 0 1 2 3 4 a great extent
6. Practitioner uses empathic listening statements when the patient talks about the topic	not at all 0 1 2 3 4 a great extent
7. Practitioner uses summaries to bring together what the patient says about the topic	not at all 0 1 2 3 4 a great extent
8. Practitioner acknowledges challenges about behaviour change that the patient faces	not at all 0 1 2 3 4 a great extent
9. When practitioner provides information, it is sensitive to patient concerns and understanding Not Applicable <input type="checkbox"/>	not at all 0 1 2 3 4 a great extent
10. Practitioner actively conveys respect for patient choice about behaviour change	not at all 0 1 2 3 4 a great extent
11. Practitioner and patient exchange ideas about how the patient could change current behaviour (if applicable) Not Applicable <input type="checkbox"/>	not at all 0 1 2 3 4 a great extent

Practitioner BECCI Score: _____

Practitioner speaks for (approximately):-

More than half the time About half the time Less than half the time

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For enquiries about BECCI, please contact Dr. Claire Lane LaneCAI@cf.ac.uk

Appendix L: OPTION – Observing Patient Involvement Scale (study four)

Elwyn, G., Edwards, A., Wensing, M. & Grol, R. (2005). *Shared decision making measurement using the OPTION instrument*. Cardiff: Cardiff University

6.4 German version



Patienten

OPTION Beobachtung der Einbeziehung von

© Juni 2004 elwyn@cardiff.ac.uk

Name des Bewerbers	Arzt-Code	Datum der Bewertung	Tag	Monat	Jahr
		Konsultation Nr.			
		Dauer der Konsultation (Minuten, Sekunden)			
		Arzt (männlich = 1, weiblich = 2)	Alter	Geschlecht	
		Patient (männlich = 1, weiblich = 2)	Alter	Geschlecht	
		Erste Konsultation	1		
		Folge-Konsultation	2		
		Gemischte-Konsultation	3		
Beschreibung des Indexproblems					

1	Der Arzt lenkt die Aufmerksamkeit auf ein bestimmtes Problem, das einer Entscheidung bedarf.	0	1	2	3	4
2	Der Arzt teilt mit, dass es mehr als einen Weg gibt, um mit dem identifizierten Problem umzugehen.	0	1	2	3	4
3	Der Arzt klärt, in welcher Art und Weise der Patient Informationen erhalten möchte, um eine Entscheidung treffen zu können (z. B. im Gespräch, durch das Lesen von Informationsmaterial, durch die Präsentation grafisch aufbereiteter Daten, durch Videos oder andere Medien).	0	1	2	3	4
4	Der Arzt zählt Optionen auf, worunter auch die Option fallen kann, nichts zu tun.	0	1	2	3	4
5	Der Arzt erläutert dem Patienten die Vor- und Nachteile der verschiedenen Optionen (nichts tun ist ebenfalls eine Option).	0	1	2	3	4
6	Der Arzt exploriert die Erwartungen (oder Ideen) eines Patienten, wie mit dem Problem (den Problemen) umgegangen werden soll.	0	1	2	3	4
7	Der Arzt exploriert die Sorgen (Befürchtungen) des Patienten, wie mit dem Problem (den Problemen) umgegangen werden soll.	0	1	2	3	4
8	Der Arzt vergewissert sich, dass der Patient die Informationen verstanden hat.	0	1	2	3	4
9	Der Arzt bietet dem Patienten explizit Möglichkeiten an, während des Entscheidungsprozesses Fragen zu stellen.	0	1	2	3	4
10	Der Arzt findet heraus, in welchem Ausmass der Patient bei der Entscheidungsfindung beteiligt werden möchte.	0	1	2	3	4
11	Der Arzt weist darauf hin, dass es notwendig ist, eine Entscheidung jetzt zu treffen (oder aufzuschieben).	0	1	2	3	4
12	Der Arzt weist darauf hin, dass es notwendig ist, noch einmal auf die Entscheidung zurückzukommen (oder auf das Aufschieben der Entscheidung).	0	1	2	3	4

Score	Beschreibung
0	Die Kompetenz wird nicht beobachtet.
1	Ein minimaler oder oberflächlicher Versuch wird unternommen, die Kompetenz zu zeigen.
2	Die Kompetenz wird beobachtet und erreicht ein minimales Niveau.
3	Die Kompetenz entspricht einem guten Standard.
4	Die Kompetenz entspricht einem sehr hohen Standard.

Appendix M: German summary

Zusammenfassung

Übergewicht und Adipositas sind weltweit zentrale Themen in der Gesundheitsversorgung. Die WHO (1998) bezeichnet die Adipositas als globale Epidemie und eine chronische Krankheit mit eingeschränkter Lebensqualität und hohem Morbiditäts- und Mortalitätsrisiko, die eine langfristige Betreuung erfordert. In Deutschland sind zwei Drittel der männlichen und die Hälfte der weiblichen Bevölkerung der über 18-Jährigen übergewichtig, 17 Prozent der Männer und 20 Prozent der Frauen adipös (Mensink, Lampert & Bergmann, 2005; Mensink & Bergmann, 1999).

In Leitlinien zur Behandlung der Adipositas wird eine kombinierte Therapie aus Ernährungsumstellung, Steigerung der physischen Aktivität sowie verhaltenstherapeutischen Elementen empfohlen. Hausärzte sollen in der Betreuung übergewichtiger und adipöser Patienten eine Schlüsselposition einnehmen (DAG, 2007; BDA, 2008).

Ziel der vorliegenden Dissertation ist, die hausärztliche Versorgung übergewichtiger und adipöser Patienten zu untersuchen. Dazu wurden quantitative und qualitative Datenerhebungs- und -auswertungsverfahren genutzt. Die derzeitige Betreuung betroffener Patienten wurde mit Vorgaben aus Leitlinien verglichen. Schwerpunkt dieser Arbeit ist die Analyse und Bewertung des ärztlichen Beratungsgesprächs. Zusätzlich wurden ausgewählte psychometrische Patientencharakteristika untersucht sowie Hausärzte mittels leitfadengestützter Interviews befragt. In diese Dissertation gehen fünf Studien ein, die im Rahmen eines BMBF- Projekts (FKZ 01GWS053) realisiert wurden.

Die Ergebnisse der ersten Studie („Perception of stress and quality of life in overweight and obese people – Implications for preventive consultancies in primary care“) zeigen, dass übergewichtige und adipöse Patienten im Vergleich zu einer Stichprobe normalgewichtiger Patienten mehr Stress erleben sowie eine eingeschränkte psychische und körperliche Lebensqualität haben. Das Alter, der Sozialstatus sowie das Ausmaß des BMI fungieren als Prädiktoren für die physische Lebensqualität. Defizite in der erlebten psychischen Lebensqualität nehmen mit dem Alter zu.

Die zweite Studie („Locus of control, self-efficacy and attribution tendencies in obese patients – implications for primary care consultations“) dient ebenfalls der psychometrischen Charakterisierung der Patienten. In den drei Dimensionen der gesundheitsbezogenen Kontrollüberzeugungen - Internalität, soziale Externalität und fatalistische Externalität - sowie der allgemeinen Selbstwirksamkeitserwartung weisen die befragten Patienten keine Abweichungen von Normpopulationen auf. Patienten nannten vor allem verhaltensbezogene Ursachen für ihr Übergewicht. Hingegen neigen Patienten mit einem BMI über 30 kg/m² signifikant häufiger zu einer genetischen Ursachenattribution.

Diese Ergebnisse weisen auf mentale Gesundheitseinschränkungen bei übergewichtigen und adipösen Patienten hin. Die geringe verhaltensbezogene Attribution bei adipösen Patienten erhöht die Anforderungen an die hausärztliche Betreuung betroffener Patienten.

Die dritte Studie („Counseling overweight patients: Analysis of preventive encounters in primary care“) zielt darauf ab, Beratungsgespräche mit übergewichtigen und adipösen Patienten v.a. hinsichtlich der thematisierten Inhalte zu analysieren. Außerdem wurde geprüft, inwieweit Patientencharakteristika die Gespräche beeinflussen. Die Gespräche dauerten durchschnittlich 8,5 Minuten, allerdings variierte die Gesprächslänge signifikant in Abhängigkeit vom beratenden Arzt (Spannweite: 1,5-32 Minuten). Ein höherer BMI korreliert mit einer längeren Beratungsdauer. Entgegen der Annahme, dass Patienteneigenschaften einen Einfluss auf die Inhalte des Gesprächs nehmen, sind vor allem Arztcharakteristika (Person und Geschlecht) prädiktiv für die Thematisierung von kardiovaskulären Risikofaktoren sowie Ernährung und Bewegung. Die Kombination aus Arzt- und Patientengeschlecht hat einen Einfluss auf die Länge der Beratungsgespräche: Gespräche zwischen Frauen dauern im Vergleich zu anderen Geschlechtsdyaden signifikant länger. Das weibliche Geschlecht des Arztes fungiert als Prädiktor für eine intensivere Lebensstil-Beratung. Insgesamt lässt sich feststellen, dass vor allem männliche Ärzte wenig hinsichtlich Ernährung und Bewegung beraten und sich eher auf medizinische Themen wie Laborparameter konzentrieren. Gespräche von Ärztinnen hingegen fokussieren mehr auf Bewältigungsmöglichkeiten für Übergewicht, wie z.B. die Umstellung der Ernährung oder die Erhöhung der körperlichen Aktivität.

Die Ergebnisse der vierten Studie („Obesity counseling in primary care – Motivational Interviewing and Shared Decision Making“) decken weitere Defizite in der hausärztlichen Übergewichtsberatung auf: Ärzte beziehen die betroffenen Patienten insgesamt nur wenig in Therapieentscheidungen ein. Allerdings gibt es auch hier wieder große Unterschiede zwischen den beratenden Ärzten. Das weibliche Geschlecht des Arztes fungiert als Prädiktor für einen stärkeren Einbezug der Patienten. Der Einsatz motivierender Gesprächsführungstechniken hängt vor allem von der Person des Arztes ab. Bei Patienten mit einem BMI > 30 kg/m² verwenden die Hausärzte signifikant häufiger motivierende Gesprächsführungstechniken als bei Patienten mit einem BMI < 30 kg/m².

Die fünfte Studie („GPs' objectives in counseling obesity: a qualitative analysis“) dient der Erfassung der hausärztlichen Perspektive auf die Beratung übergewichtiger und adipöser Patienten. Qualitative Inhaltsanalysen der Interviews zeigen ein differenziertes Muster medizinischer und psychosozialer ärztlicher Intentionen in der Übergewichtsbehandlung. Nach eigenen Aussagen wollen Hausärzte eine passive Rolle in der Behandlung übergewichtiger und adipöser Patienten spielen. Das steht im Kontrast zu Patientenerwartungen nach mehr aktiver Unterstützung durch ihre betreuenden Hausärzte (Ogden & Flanagan, 2008). Die Motivierung der Patienten ist ein Hauptziel der hausärztlichen Beratung im Rahmen der Adipositasbetreuung. Allerdings nehmen die befragten Ärzte betroffene Patienten als wenig motiviert wahr. Das führt häufig zu Frustration und einem mangelnden Kompetenzerleben auf ärztlicher Seite.

Die Ergebnisse dieser Dissertation identifizieren Stärken und Schwächen der Beratungspraxis und deuten auf eine geringe Leitlinien-Adhärenz der Hausärzte im Rahmen der Adipositasbehandlung. Vor allem Arztcharakteristika bestimmen über das Beratungsgeschehen, insbesondere das Arztgeschlecht spielt hier eine entscheidende Rolle. Physische Patientenmerkmale wie z.B. die Höhe des BMI hingegen beeinflussen die Inhalte von Beratungsgesprächen nicht.

Auf Grundlage der Ergebnisse und der identifizierten Defizite in der ambulanten Betreuung übergewichtiger und adipöser Patienten erscheint es notwendig, Hausärzte in der Nutzung motivierender Gesprächsführungstechniken sowie der Umsetzung von patientenzentrierten Ansätzen, wie z.B. Shared Decision Making zu schulen. Ein wesentlicher Schlüssel zur Motivationssteigerung liegt in der Fokussierung der Gespräche

auf für Patienten relevante Aspekte, beispielsweise das Stresserleben oder die Lebensqualität. Vorgaben zur Durchführung von Beratungsgesprächen mit übergewichtigen und adipösen Patienten könnten die Ärzte entlasten und einen Minimalstandard für Gespräche definieren. Neben konkreten Gesprächsinhalten und Techniken der Gesprächsführung müssen Ärzte auch verstärkt gesundheitspsychologische Konzepte zur Erklärung von Verhaltensänderungen (z.B. HAPA) in ihre Beratungspraxis integrieren. Geeignete Schulungskonzepte, die der Komplexität hausärztlicher Tätigkeit bei der Versorgung übergewichtiger und adipöser Patienten gerecht werden, müssen entwickelt werden.

Aber auch gesundheitspolitische und strukturelle Änderungen in der Versorgung übergewichtiger und adipöser Patienten werden empfohlen. Hausärzte müssen in einem interdisziplinären Team eine Schlüsselposition einnehmen und die Behandlung Betroffener koordinieren und steuern. Insbesondere medizinische Fachangestellte, die ebenso wie die Ärzte häufig eine intensive Patientenbindung haben, könnten stärker in die Betreuung von übergewichtigen und adipösen Patienten einbezogen werden.

Künftige Forschung muss Modellvorhaben zur integrierten Versorgung übergewichtiger und adipöser Patienten evaluieren, delegierbare ärztliche Tätigkeiten identifizieren und die Wirksamkeit von interdisziplinär arbeitenden Teams im Rahmen der Betreuung übergewichtiger und adipöser Patienten analysieren. Erst dann können diese Ansätze in die Regelversorgung implementiert werden.

Lebenslauf

Der Lebenslauf ist in der Online-Version aus Gründen des Datenschutzes nicht enthalten.

Publikationen

Originalarbeiten in Zeitschriften mit Peer Review-Verfahren

- Metz, U., Welke, J., Esch, T., Renneberg, B., Braun, V. & Heintze, C. (2009). Perception of stress and quality of life in overweight and obese people – Implications for preventive consultancies in primary care. *Medical Science Monitor*, 15(1), 1-6.
- Sonntag, U., Esch, T., von Hagen, L., Renneberg, B., Braun, V. & Heintze, C. (2010). Locus of control, self-efficacy and attribution tendencies in obese patients- implications for primary care consultations. *Medical Science Monitor*, 16, 330-335.
- Sonntag, U., Henkel, J., Renneberg, B., Bockelbrink, A., Braun, V. & Heintze, C. (2010). *International Journal for Quality in Health Care*, pp. 1–7, doi: 10.1093/intqhc/mzq060.
- Sonntag, U., Brink, A., Renneberg, B., Braun, V. & Heintze, C. (2011). GPs' objectives in counselling obesity: a qualitative analysis. *European Journal of General Practice*, doi: 10.3109/13814788.2011.627424.
- Sonntag, U., Wiesner, J., Fahrenkrog, S., Renneberg, B., Braun, V. & Heintze, C. (2011). Obesity counseling in primary care – Motivational Interviewing and Shared Decision Making. *Patient Education and Counseling*, doi: 10.1016/j.pec.2011.07.026.
- Heintze, C., Metz, U., Hahn, D., Niewöhner, J., Schwantes, U., Wiesner, J. & Braun, V. (2010). Counseling overweight in primary care: An analysis of patient–physician encounters. *Patient Education and Counselling*, 80, 71–75.
- Heintze, C., Metz, U., Wiesner, J., Hahn, D., Schwantes, U. & Braun, V. (2009). Übergewichtige Patienten in der Hausarztpraxis: Wie wird die Gesundheitsuntersuchung zur Risikoberatung genutzt? Eine qualitative Analyse von Arzt-Patient- Gesprächen. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen*, 103, 439- 444.
- Heintze, C., Metz, U., Dieterich, A., Schwantes, U. & Wiesner, J. (2008). Ursachen von Übergewicht. Eine qualitative Analyse von Arzt-Patienten- Gesprächen im Kontext der hausärztlichen Gesundheitsuntersuchung. *Prävention und Gesundheitsförderung*, 3, 289-295.
- Heintze, C., Sonntag, U., Brinck, A., Huppertz, M., Niewöhner, J., Wiesner, J. & Braun, V. (2011). A qualitative study on patients' and physicians' visions for the future management of obesity. *Family Practice*, doi: 10.1093/fampra/cmr051.
- Rau, R., Hoffmann, K., Metz, U., Richter, P. G., Rösler, U. & Stephan, U. (2008). Gesundheitsrisiken bei Unternehmern. *Zeitschrift für Arbeits- und Organisationspsychologie* 52, 3, 115-125.
- Regus, S., Sonntag, U., Bockelbrink, A., Welke, J., Braun, V. & Heintze, C. (2010). Die Gesundheitsuntersuchung- welchen Nutzen sehen Brandenburger Hausärzte? *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen*, doi:10.1016/j.zefq.2010.07.012.
- Rotheiler, E. & Metz, U. (2003). Beziehungen zwischen Faktoren der Arbeitsanforderungsbewältigung (FABA, Richter et al.) und den Konzepten 'Overcommitment' (Siegrist) und 'Irritation' (Mohr). *Wirtschaftspsychologie*, S.150-152.

Ausgewählte Kongressbeiträge

September 2010 Heintze, C., Sonntag, U., Henkel, J. & Braun, V. *Unterschiede von Check up-Beratungsgesprächen zwischen Ärztinnen und Ärzten.* Poster auf dem 44. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin, Dresden.

Heintze, C., Sonntag, U., Brinck, A., Huppertz, M., Wiesner, J. & Braun, V. *Umgang mit Adipositas in der Hausarztpraxis: Was denken übergewichtige Patienten und ihre Hausärzte?* Poster auf dem 44. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin, Dresden.

Sonntag, U., Wiesner, J., Braun, V. & Heintze, C. *Motivierende Gesprächsführung in der hausärztlichen Lebensstil-Beratung.* Vortrag auf dem 44. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin, Dresden.

September 2009 Döring, M., Metz, U. & Heintze, C. *Zur Relevanz von Sprachbildern in Arzt-Patientengesprächen über Übergewicht.* Vortrag auf dem 43. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin und 8. Deutschen Kongress für Versorgungsforschung des Deutschen Netzwerks Versorgungsforschung, Heidelberg.

Metz, U., Henkel, J. & Heintze, C. *Sprechen Hausärzte mit ihren übergewichtigen Patienten über Ernährung und Bewegung?* Vortrag auf dem 43. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin und 8. Deutschen Kongress für Versorgungsforschung des Deutschen Netzwerks Versorgungsforschung, Heidelberg.

Heintze, C., Metz, U., Wiesner, J. & Braun, V. *Beratung übergewichtiger Patienten im Rahmen der Gesundheitsuntersuchung: Eine qualitative Analyse von Patienten-Arztgesprächen.* Vortrag auf dem 43. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin und 8. Deutschen Kongress für Versorgungsforschung des Deutschen Netzwerks Versorgungsforschung, Heidelberg.

September 2008 Heintze, C., Henkel, J., Wiesner, J., Schwantes, U. Bahrs, O. & Metz, U. *Prevention in primary care: doctor-patient communication about cardiovascular risks with obese clients. Symposium lecture at the EACH conference (European Association of Communication in Healthcare), Oslo.*

Metz, U., Brinck, A., Hahn, D., Schwantes, U. & Heintze, C. *Prevention in primary care: How do doctor's attitudes influence consultancies with overweight and obese patients?* Poster presented at EACH conference (European Association of Communication in Healthcare), Oslo.

Metz, U., von Hagen, L., Braun, V. & Heintze, C. *Der übergewichtige Patient in der Hausarztpraxis- Chancen und Herausforderungen*, Poster auf dem 42. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin, Berlin.

Regus, S., Metz, U., Brinck, A., Braun, V. & Heintze, C. *Funktionen und Grenzen des "Check Up 35" in der hausärztlichen Praxis –Eine qualitative Befragung*, Poster auf dem 42. Kongress der Deutschen Gesellschaft für Allgemein- und Familienmedizin, Berlin.

- Juli 2008 Metz, U., Dieterich, A. & Heintze, C. *Triangulation supports a comprehensive understanding of patients' view of their obesity*. Symposium lecture at the International Congress of Psychology, Berlin.
- Oktober 2007 Von Hagen, L., Heintze, C., Braun, V. & Metz, U. *Risikoberatung in der Hausarztpraxis: Ergeben sich durch die Charakterisierung übergewichtiger Patienten effizientere Präventionsansätze?* Poster auf dem 6. deutschen Kongress für Versorgungsforschung und 2. nationalen Präventionskongress, Dresden.
- Oktober 2007 Wiesner, J., Metz, U., Dieterich, A., Schwantes, U. & Heintze, C. *Hausärztliche Präventionsberatung: Eine qualitative Analyse von Gesprächen übergewichtiger Patienten bei der Check up Untersuchung*. Poster auf dem 6. deutschen Kongress für Versorgungsforschung und 2. nationalen Präventionskongress, Dresden. Ausgezeichnet mit dem 1. Posterpreis
- Juli 2006 Rösler, U., Rau, R., Hoffmann, K., Metz, U., Stephan, U. & Richter, P. *Cardiovascular Health in Entrepreneurs? Beyond the Job Demand Control Model*. Symposium lecture at the congress of psychophysiology, Dresden.

Erklärung

Hiermit versichere ich, dass ich die vorgelegte Arbeit selbständig verfasst habe.

Andere als die angegebenen Hilfsmittel habe ich nicht verwendet.

Die Arbeit ist in keinem früheren Promotionsverfahren angenommen oder abgelehnt worden.

1.März 2011

Ulrike Sonntag