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Having knowledge of metabolic syndrome: Does the meaning and consequences of the risk factors influence the life situation of Swedish adults?

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Abstract

The underlying causes of the metabolic syndrome are uncertain. Knowledge from those who have experience of this syndrome should provide new insight. The aim was to explore the meaning and consequences of the metabolic syndrome. Thirteen Swedish adults, aged 33 and 82 years with the metabolic syndrome were interviewed. The interviews were analyzed using constant comparative analysis which is the basis of grounded theory. The meaning and consequences of having risk factors for the metabolic syndrome consist of the recurrence of behavior which was the core category. The informants attempted to balance their insight into the causes and consequences by referring to their normal life, life style and fatalistic approach to life. Attention needs to be paid to the attitudes of the individuals with the metabolic syndrome, towards the known risk factors and their consequences, in order to facilitate a long term life style change in them.

Keywords: Consequences, grounded theory, meaning, Metabolic Syndrome, risk factors

Introduction

The metabolic syndrome (MS) is a condition highly prevalent (7-40 %) in the population worldwide, regardless of the definition used (Ford & Li 2006). Recent data, according to a modified NCEP definition of MS, show a rising prevalence from 21 % (1995) (Nilsson et al. 2007) to 25 % (2004) (Hollman & Kristenson 2008) of the middle-aged Swedish population, indicating that this is also a problem in Sweden. MS is a complex construct of cardiovascular risk factors that identifies individuals with an increased risk of coronary heart disease (CHD). While there are several definitions at hand, all of them include the following factors: Abdominal obesity, elevated blood pressure, high triglycerides, low high-density cholesterol (HDL cholesterol) and signs of insulin resistance, such as high fasting plasma glucose (Grundy et al. 2005). The most prominent risk factor among middle-aged Swedish women was high waist circumference, 99 % having a waist circumference above the cut off point which is for women >88 cm (34.6 inches) (Hollman & Kristenson 2008). The presence of MS is reported to increase the risk of CHD among 50 year old men by more than threefold. After adjustment for established risk factors MS remained as a predictor for increasing the risk for CHD (Ingelsson et al. 2006).

Until now there has been no clear consensus about the causes behind the development of MS. Apart from physical risk factors; even psychosocial and socio-economic factors are being considered as having an influence on the development of MS. Life style associated factors such as an increased intake of high energy foods and/or overeating in combination with a sedentary life-style with insufficient physical activity, do increase the risk of developing diabetes type 2, hypertension, cardiovascular diseases as well as MS (Groessl et al. 2004; Lakka et al. 2007). Habits such as smoking and alcohol consumption are also related to MS. A change up to a higher social class as a one time change in life does not influence the presences of MS unless there is also a change in lifestyle (Kyung-Won et al. (2006). A low

level of education (Langenberg et al. 2006), having immigrant status (Hollman Frisman & Kristenson 2008, unpublished data), stress, especially chronic stress related to work, (Chandola et al. 2006) are reported as factors of relevance.

Awareness of the significance of MS risk factors and the risks involved by having the disease is the corner stone with which to motivate individuals with an unhealthy life style to implement a change of life style. Insufficient knowledge of the disease risk may influence the awareness and consequently the life style (Weaver et al. 2006). Likewise, general social awareness of risk factors, such as future cardiovascular disease, is of importance in order to provide individuals with risk factor consciousness and support from their home environment.

There is limited research that reveals how individuals with MS think, interpret and cope with the risk factors for MS. Even though individuals with MS have some knowledge of the risk factors they may not know how to cope with this knowledge. Our understanding is that no studies have been undertaken to analyze how individuals with MS describe their own experience of how the risk factors influence their lives and the possible consequences of the risk factors for MS. The aim of this study was to explore the meaning and consequences of risk factors for MS.

Methods

Since the underlying risk factors for MS often are influenced by social life, social processes or life style (Hollman Frisman & Kristenson 2008, unpublished data), the purpose of this study was to explore and identify the meaning and consequences of the risk factor that having MS involves and which may provoke an increased risk for CHD. A qualitative approach influenced by symbolic interactionism and grounded theory was regarded as appropriate in order to understand human behavior in these matters. Symbolic interaction targets the inner process and social interaction builds the human consciousness in time, as

well as the consciousness towards a specific situation (Blumer 1969). Grounded theory, according to Glaser, emanates from symbolic interaction, which is a way to analyze how individuals perceive, understand and interpret the world. The experience of risk factors, as related to social process, are preferably analyzed by influence of symbolic interactionism and grounded theory with its roots in social processes. Through direct interaction with people in open-minded inductive analyses it is possible to understand the symbolic world of the people being studied (Blumer 1969; Glaser 1998).

To select individuals with MS the National Cholesterol Education Programme's (NCEP) definition of MS was used, where at least three of the following risk factors must be present: arterial blood pressure $\geq 130/85$ mm Hg or specific medication, waist circumference, for men >102 cm (40 inches), for women >88 cm (34.6 inches), triglycerides ≥ 1.7 mmol/L (≥ 150 mg/dl), high density lipoprotein (HDL) cholesterol for men < 1.0 mmol/L (< 40 mg/dl), for women < 1.29 mmol/L (< 50 mg/dl), fasting blood glucose ≥ 6.1 mmol/L (≥ 110 mg/dl) (National Swedish Institute of Health 2002). The informants, without diabetes mellitus, were selected among outpatients at a lipid clinic at a university hospital and at a care centre both in the same city in Sweden. Informants received written information about the study and they confirmed their participation by written consent. In accordance with grounded theory one informant at a time was contacted by telephone and an appointment with time and place for the interview was made during the telephone call. All interviews were performed in the informants' homes according to the informants' wishes. Theoretical sampling was used in order to include informants with MS and with maximum variation according to background characteristics such as gender, age, education, occupation, housing area and cultural background. An individual who could be expected to give new aspects concerning the causes and consequences of MS was theoretically selected after each analysis and constant comparison with earlier interview transcripts took place. The maximum variation through

theoretical sampling increases the ability to find similarities and differences in order to widen the discovery of categories. To find informants who could widen the categories, informants were selected step by step after constant comparative analyses and coding, which was the method used throughout the study (Glaser & Strauss 1967).

Data were collected from 13 Swedish informants, aged between 33 and 82 years, six men and seven women, eleven of the 13 were married or cohabitating and their educational levels and housing areas varied. An interview guide constructed to explore the meaning and consequences of living with the risk factors for MS was used. The guiding questions were: (1) Would you please describe the meaning for you of living with changed values such as high blood pressure, high weight and/or changed blood lipids/blood glucose? (2) Would you please describe if living with these changed values influences your life? The interview started with the first question and the following question was used if the area was not referred to in the answer to the first question. The informants spoke openly and when necessary follow up questions were used for confirmative purposes. Conceptual elaboration was central during the theoretical sampling which is why it was impossible in advance to say how many informants needed to be included. The theoretical sampling was conducted until saturation was reached which was after eleven interviews (Glaser and Strauss, 1967). Thereafter another two interviews were performed in order to secure saturation. All interviews were tape-recorded; they were from 30 to 60 minutes duration and were transcribed verbatim. The tape-recorded interviews were kept in a safe place. All the data were treated confidentially.

Analysis

Constant comparative analysis was performed independently by the two authors. Data were systematically gathered and analyzed through continuous interplay between analysis and data collection. The data were analyzed line by line through open coding and any relation

between parts and the entirety were searched for during theoretical coding (Glaser & Hon 2005). For the purpose of finding similarities and differences, substantive codes were compared and categories identifying the underlying meaning of having risk factors for MS were generated. Categories were filled up with new properties (characteristics) and new categories emerged during further analysis. Categories were selectively coded and continuously related to one another until a core category, grounded in the data, emerged. The core category has relevance and explains the meaning and consequences of having risk factors for MS. Categories were discussed and modified to fit and work in order to explain the data. The authors reached consensus over the main substantive codes, categories, headings, conceptualization and the core category (Glaser 1998; Glaser 1978).

Ethical considerations

Participation through giving information relating to thoughts about the causes and consequences of MS can be experienced as being insulting to integrity. On the other hand informants may experience support from participating by their being listened to. Extra attention was given to any psychological reactions by the informants during and immediately after the interviews and time enough was given to answer any questions or to give support if any of the informants needed it. The results are presented in such a way that makes it impossible to identify any of the informants. The Ethics Committee, Faculty of Health and Sciences, Linköping University, Linköping, Sweden approved the study (reference number: M65-05), according to the Helsinki Declaration.

Results

In the analysis, one core category; recurrence of behavior and three categories were identified that explore and explain the meaning of living with the risk factors for MS. The

categories that emerged from the data were life style, normal life and fatalistic approach to life, each of which are related to one other. These categories were scrutinized in order to verify their relevance and to show their integrative relationship with the core category.

Recurrence of behavior means to maintain or to fall back to common everyday behavior. The least demanding way of living is to keep a habit instead of making a life style change. Life style changes demand awareness of the risk factors of a bad lifestyle but can also be a driving force. Awareness about the causes and consequences of MS was common although the informants had difficulties mastering their awareness. Insight into the situation, living with risk factors for CHD, promoted a willingness among them to change their life style with regard to overeating and insufficient physical activity, but motivation and driving forces for how to initiated life style changes remain poor. Moreover lack of knowledge or unwillingness to know more about the risks of an unhealthy lifestyle promoted flight behavior, which in turn facilitated the recurrence of unhealthy behavior. One way of neglecting the problems of the risk of recurrent unhealthy behavior was to avoid the issue of risk factors and ignore them as being fact. Awareness of their own body shape was not always realistic, some talked about their body as being normal, although perhaps overweight. Life went on with the continual recurrence of unhealthy behavior, balancing life style and normal life with fatalism. An awareness of their current life style and recurrence of unhealthy behavior was not enough for them to promote a life style change and their current life style was seen by them as being a normal life style. One way to manage their lives when they had full awareness and insight into their unhealthy life style was to adopt a fatalistic approach towards life instead.

Life style

Life style concerns how people live their lives and what attitudes and possibilities affect their life situation. A sedentary life style could be due to a work situation which endorses their current life style. Exercise demands motivation and there is a need for a driving force to perform it. A life style change with continuous exercise such as going for walks demands planning, time and energy. Stress was a prominent finding that influenced life style, stress in relation to work, especially when having irregular working hours, influences both the possibility to exercise and the patterns of food consumption. Irregular working hours also meant social isolation for the informants.

”A divorce behind me and, then also two children I had to take care of, and full time work, working weekends... sometimes I had to drive the children to their day career at three o’clock in the morning and arrived home at eleven or twelve at night.” (Interview 12)

In stress-related situations, meals often consisted of unhealthy food; fast food eaten at restaurants or bought and eaten at home. Eating habits were also due to social habits within the family since childhood. This study revealed some insight into poor eating habits as well as the problems of overeating and its consequences for weight gain and development of CHD. Eating habits are a life style that is hard to change.

Stress was also experienced when related to an awareness of the risk factors. Thoughts around risk factors that could cause disease, for example, hypertension, heart attack or stroke were experienced as being stressful. Being responsible for the family’s economy as well as caring for the family was also a cause for the informants to wish for a long life.

Although the informants were aware that they had an unhealthy life style, they interpreted their life style as being normal.

Normal life

Living a normal life was characterized by being satisfied with life as it is, and an acceptance of one's life situation, despite having risk factors and being overweight. Not exercising, eating something extra or even sometimes overeating was regarded as something normal. To balance their life situation with risk factors towards a normal life gave a feeling of well-being.

"It is a hollow feeling I feel I can't handle ... and I feel better being a bit big actually, I am more happy this way and have a feeling of calmness." (Interview 9)

Normal life includes sexual life, which sometimes was hard to manage due to a heavy body and poor fitness. This was one reason for feelings of guilt towards their partners; not being able to maintain a normal life and offer what may be expected. Living a normal life was seen as a personal responsibility and being conscious of living a sedentary life style promoted the desire to be more active, to have more energy and even to change their body image.

"I should be more active, manage more...that's the most important thing. Look a bit nicer, get rid of some of my tummy. " (Interview 1)

To experience one's own life as normal meant to allow oneself to continue the recurrence of unhealthy behavior and could to some extent be seen as form of flight behavior, as well as the cause for adopting a fatalistic approach towards life.

Fatalistic approach to life

Why care? A neglecting attitude was prominent among the informants, and a life with recurrence of unhealthy behavior seemed to be easy, as risk factors could be supposed to be caused genetically. Thoughts of genetic causes endorsed the informants' behavior and they saw no reason to make any changes. All of their problems emerged from circumstances that were impossible for them to influence. The easiest way of living is then just to live for the day. Existential thoughts, about diseases such as a heart attack or stroke as being genetically mediated caused sadness and anxiety which could be avoided when living on a day to day basis without thought for the future.

The only thing to worry about then was the paradox of not worrying about anything. A feeling of being stigmatized was also present, where being overweight negatively influenced the experience of being attractive as well as lowering the self-esteem. There was a sense of guilt, remorse, and of being a worse person when compared to others. Their self-esteem was injured and support from a family member or society was needed to be able to cope with the guilt and to obtain positive feelings and empowerment.

” ... it's boring being overweight, clothes not fitting, it would be fun to lose a few kilos, but I don't know what to do, convert totally to green, but then that won't be fun” (Interview 7)

Continuous consciousness about risk factors and facing existential threats caused cynicism among the male informants, who often needed to displace or make a joke of their

situation in order to feel free from it. On the other hand, after a heart attack, greater insight occurred and the materialistic demands of unhealthy living were reflected and other parts of life such as family, grandchildren and leisure time became more highly valued.

Discussion

The informants attempted to perceive a feeling of good health and well-being, even though there was a continuous recurrence of behavior, their awareness of the risks as well as their awareness of their own behavior varied and fluctuated between being more or less realistic. Likewise, women at risk for CHD still appear to underestimate the risk even when living with evident risk factors (Hammond et al. 2007). Hammond et al. (2007) call for methods aimed to “bridge the gap” between perceived and real risk awareness. Recurrence of behavior may negatively influence the risk awareness. In the social context, where the individual overeats daily and where low physical activity was normal behavior, this was accepted as normal life. Even a fatalistic approach may be a consequence emanating from the social context, and appear as recurrence of unhealthy behavior and be regarded as normal life without any reflection. Unawareness or denial of ones current behavior is one obstacle for motivation towards a change to a positive life style. (Naidoo & Wills 2005).

Coping with a stressful life, governed by work and living circumstances which were difficult to control was considered by the participants to be manageable by living their interpretation of a normal life. It is hard to handle work and family situations and make a sacrifice towards a healthier life style because of the awareness that one’s life style is unhealthy. The first response to a stress factor is to make an appraisal of its possible influence on ones life, and to then consider the possibilities for managing the stress factor. Individuals

with MS may experience their risk factors as stressors, for example being overweight and in turn having difficulties to manage the stressor. The possibility of not living a long normal life was experienced as threatening and a response shift was expressed by some informants. On the other hand, others were satisfied with their weight and wanted to keep their present body shape in order to be able to recognize themselves even if they were overeating and overweight. With this perception these individuals do not see any need for a change in their life style and accordingly there is a need to increase their awareness of their situation.

An important ingredient of normal life for couples was love and sexuality, even though men did experience it hard to fulfil this due to their having less agility and fitness. None of the women expressed any feelings related to love or their sexual life; this could be due to the women's perception of their body image as being not so attractive. However, according to Esposito and Giugliano (2005), obesity may be a risk factor for sexual dysfunction in both sexes. However, a change toward a healthier life style may reduce obesity and hopefully the burden of sexual dysfunction, which in turn could increase well- being.

Living on a day to day basis seems to be a way of keeping thoughts of life and the threat of disease apart, which is exactly what patients with diabetes, who failed to cope with their disease, also have a tendency to do (Zoffmann & Kirkevold 2005), the same also applies to newly diagnosed hypertensive individuals (Weaver et al. 2006) and patients with familial hypercholesterolemia living with a risk factor and threat of CHD (Hollman et al. 2004). A feeling of being stigmatized was expressed in this study by the overweight informants , as well as among individuals with familial hypercholesterolemia who felt stigmatized by having a diagnosis that meant a threat to their health (Hollman et al. 2004).

Awareness of a life style including overeating, a sedentary life style and accordingly being overweight as being risk factors that may produce feelings of guilt must be taken seriously, and probably informants with guilt need to express their feelings in order to

understand their situation and the risk factors from an overall perspective. To achieve a long term life style change, attention must be paid to the needs of each individual, their problems, and with regard to their privacy (Gené-Badia et al. 2007) when aiming to help them find motivation and empowerment.

One way to support individuals with recurrence of negative behavior may be the use of the Guided Self Determination (GSD) method. The GSD method was developed in order to strengthen the decision making process in patients and is consistent with empowerment. For obese individuals with difficulty to lose weight the GSD method has been successful when starting out by professionals getting involved in patients' decision making rather than the opposite. The reason why the GSD method is successful is due to the possibilities it offers the patient to be prepared for the visit to the clinic by previously filling out a reflection-form, talking about their difficulties and sharing reflections and experiences with other obese individuals (Zoffmann 2006).

The causes of MS are not explained by this study, but the study brings some understanding of the possible underlying causes. Still the question remains: is it the recurrence of unhealthy behavior that is an underlying cause of MS or is recurrence of unhealthy behavior to be judged as a consequence of MS?

Grounded theory appeared to be an appropriate method to use, as it aims at understanding and explaining human and social processes as being behavior influenced by the social context in which the individual lives. This study being empirically grounded, through fitting examples from data, means that there is transferability of the findings to other groups living with risk factors threatening their health. Homogenous informants with the same risk factors for MS, according to the NCEP definition, were selected through theoretical sampling. To be able to

widen and fulfil the categories, maximum variation was applied during the sampling. To ensure trustworthiness the two authors read the transcripts, using constant comparative analysis, then independently of each other coded the memos into categories. Thereafter an agreement was established concerning categories and the core category.

For the present study, adults over 18 years of age were sought after, but risk factors for MS, according to the NCEP definition of MS (three or more) are not developed among younger people which made it impossible to include individuals aged below 33 years. Another limitation in this study is the failure to find individuals from other cultures, or people who live alone or are unemployed and have MS, who would agree to participate. Individuals from different cultures, different environments and varied social situations may well experience their situation in different ways, which is why it would be interesting to study them separately.

Conclusion

Recurrence of behavior seems to contribute to the risk factors for MS. Coping with life style changes simultaneously with demands for a perceived normal life is hard, and keeping life and threats against it apart in one's mind was found to be an easy way out. For individuals with MS, attention must be paid to the individual's awareness of the risk factors as well as the individual needs to attain empowerment and a long healthy life style change.

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