



Health behavior change and life course: A qualitative study using focus-groups

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ABSTRACT

Aim: This study was aimed to explore the mechanisms of long-term behavior changes to a healthier lifestyle. **Materials and Methods:** We conducted focus group interviews with a sample of 18 adults without further selection criteria and applied a top-down thematic analysis approach to extract the determinants of long-term health behavior change. **Result:** The results showed that long-term health behavior changes only occurred as a response to life events that force individuals to abandon established habits. These triggers accrued from the interplay of three life course elements: The life phase, a change in external living conditions (e.g. the social environment) over time, and internal motifs (past experience, future goals, and perceived immediate payoff). **Conclusion:** Our results are discussed in the context of sociological lifestyle theories, suggesting that long-term lifestyle change follows from a disturbed equilibrium between external determinants and identity cues.

KEY WORDS: Behavior change, focus group, Life course, life events, lifestyle

INTRODUCTION

The burden of disease is largely determined by behavioral risk factors [1] and many countries promote the adoption of a healthier lifestyle for primary prevention [2,3]. However, many people don't adhere to a healthy lifestyle [4] and lifestyle interventions have shown small or no beneficial effects [5]. Current research on health behavior change stresses that although numerous interventions have proven successful for initially changing a behavior, these strategies fail to produce reasonable rates of long-term maintenance [6].

Although various models of health behavior describe the process of health behavior change, most research carried out to date has neglected the impact of the life course on maintaining the change long-term. Cockerham (2005) presents a model in which structural variables (e.g. living conditions, social circumstances) limit the chances of satisfying one's needs and wants; they also shape the living experience, manifesting in social patterns and individual decision process that result in a disposition to act, the so-called habitus, and the lifestyle as a pattern of behaviors [7].

It has been suggested that life events may function as medical triggers, leading to a better adherence to lifestyle changes [8,9] and a number of recent studies report on the association between different life events (e.g. change in employment status, residence and relationships) and health behavior change, including a change in physical activity [10], weight loss [11], and smoking [12].

However, many public health interventions still use methods that focus on short-term behavior change and single scientifically established factors rather than on the individual life course and its dynamics that cause certain events to function as triggers of new behaviors. The empirical research on the interplay of individual choices, life events, and structural variables is still in its infancy.

Against this background, our study was designed to explore the mechanisms of long-term changes to a healthier lifestyle, with a focus on the life course dynamics.

METHODS

We recruited a random sample of German-speaking adults as a group that is heterogeneous in terms of age and socio-economic status (SES), and thus might result in a more diverse range of statements that, in turn, might stimulate the discussions further. The sample was recruited from the general population via oral and written announcements in various public, educational, and private institutions. Participants were included if they were adult (aged 18 years and above) and interested in participating in the focus-groups.

The study comprised 18 participants, of which 50% were working or had been working in a healthcare setting (3 retirees, 4 student trainees, 1 health coach, 1 fitness trainer). The other half were in employment or self-employed. Five (eight, five) participants had a high (middle, low) SES with regard to occupation when using the NS-SEC Coding Tool and the socioeconomic index for occupations by Hauser *et al.* (1997) [13].

The age of all participants ranged from 30 to 78 with a mean of 52.1. 78% of the participants were female and the subjective health status was rated on average $h = 6.9$ [5-9] on a 10-point scale (1: Very unhealthy; 10: Very healthy), with the subjective healthiness of one's lifestyle rated $l = 7$ [5-9] on a 10-point scale (1: Very unhealthy; 10: Very healthy). Five individuals (28%) were between 20 and 40 years, nine (56%) between 41 and 65 years and four participants were aged 66 or over (17%). Two third of the participants had a college degree or higher (Table 1).

Focus Group Procedure

The size of the focus groups varied between 4 and 6 persons; the duration of the four focus groups was between 60 and 90 min. Each focus group began with a short introduction in which one researcher (ML) reiterated the aims and rules of the study. The schedule was based on five interview questions, which aimed at stimulating open-ended discussions on the mechanisms of positive long-term health behavior change rather than explicitly addressing the project question. For this purpose, we encouraged the participants to compare the influences on the initiation of lifestyle changes with those on its maintenance, asked for possible determinants of lifestyle maintenance, and facilitated a corresponding discussion. We started the focus groups with a short introduction dealing with the impact of lifestyle on health and the difficulty of changing one's behavior toward a healthier lifestyle and adhering to these positive changes. We defined the goal of the study to better understand the mechanisms of long-term behavior change and asked the participants to rate their personal health status and how healthy their lifestyle was. The first two questions addressed the perceived influences on health behavior change and the process of maintenance of health behavior. Depending on the discussion, we asked for possible determinants with a positive or negative impact on maintaining a healthy behavior. Participants without personal experience of lifestyle changes were not treated differently. They were invited to report on their thoughts, opinions or related experiences. The third question dealt with the role of reference points in life that function as ultimate goals and support a healthy lifestyle (e.g. family, partner, religion). The fourth question asked how a theoretical 'healthcare company' could help the participants to adhere to a newly adopted lifestyle. This question was an alternative approach to questions 1 and 2. The final question was

introduced by the presentation of a hypothetical online lifestyle prevention tool that diagnoses the individual healthiness of one's lifestyle and provides tailored recommendations of health behavior change. All focus groups were recorded on audiotape and transcribed verbatim. The questions and the recruitment text are available on request.

Analysis

Thematic analysis with a top-down approach was adopted in order to analyze the interview transcripts on the whole group level [14]. Our analysis was based on the presupposition of the existence of distinct, identifiable factors which drive the mechanism of long-term health behavior change by causal interactions. Furthermore, we analyzed the data in light of Cockerham's model, presented in the introduction [7], claiming that a lifestyle change is triggered by the interplay of internal and external factors during the life course.

In short, the process of our thematic analysis comprised six steps: The first two authors transcribed the interviews, read and re-read the anonymized transcripts, and familiarized themselves with the content (1) in order to identify initial codes that categorize the data (2). These codes were combined with a preliminary set of themes (3) which were discussed among and reviewed by the authors (4), before the final theme was defined and analyzed in regard to our research questions (5). Disagreements between two authors were solved by discussion or arbitration by the third author. We tested the validity of the themes by searching for contradicting statements in the transcripts and, finally, the authors reviewed, described, and discussed the analysis as presented in the following section (6). The analysis was conducted in German and quotes were translated by ML for this paper. The references relate to the chronological number of the focus group and the line number in the German transcript.

RESULTS

Behavior Change as a Response to Life Events

Our analysis revealed that long-term behavioral changes only happen if an event with a major impact on the individual life causes a person to rethink and discontinue the established behavioral traits and adopt new ones. For instance, it was only after a participant had a breakdown caused by exhaustion and weakness that she decided to adhere to a healthier lifestyle. Another participant stopped smoking due to her pregnancy, and yet another related a story of a drug addict who had broken the habit also due to her pregnancy. A male member of a focus group had serious back pain caused by his profession; in combination with the increasing perception of age the back pain motivated him to become more physically active. Two participants stated explicitly that they believe that people are rigid in their habits and change them only in face of problems with a major impact on their lives: "I am of the opinion that most people react with a change (of behavior) only in regard to a really big problem" (II, 262 f. = interview II, row 262 in the transcript) and "I was very motivated by a stroke of fate to say to myself: You need

Table 1: Characteristics of participants by focus group

Focus group	Number (female)	Mean age (SD)	SES of participants (high/middle/low)	Mean health rating (SD)	Mean lifestyle rating (SD)
1	5 (2)	56.4 (2.5)	1/3/1	7.2 (0.8)	7 (1.7)
2	6 (5)	64 (14.2)	4/2/0	7.7 (1.1)	8 (1)
3	4 (4)	45.3 (7.3)	0/3/1	6 (0.7)	6.25 (0.4)
4	3 (3)	30 (0.5)	0/0/3	5.3 (0.5)	6 (0.8)

The table displays the absolute number of participants (female participants) per focus group in column II, the mean age (SD: standard deviation) in column III, the absolute number of participants with a high, middle or low socio-economic status in column IV, the mean health rating on a likert scale 1-10 where 1 = unhealthy and 10 = very healthy in column V, and the mean healthy lifestyle rated on a likert scale 1-10 where 1 = unhealthy and 10 = very healthy in column VI.

this energy and I'm very happy that I've started this (to have a healthy lifestyle)" (I, 98 f.).

These life events don't always result in a change towards a healthier lifestyle; the earlier examples in which pregnancy led to breaking addictive habits were contrasted by another participant who stated: "I played sports my entire life... [...] until I gave birth to my children; there was a long pause afterwards..." (II, 136).

When we compared the statements of participants who explicitly reported a change of health behavior in the past ($n = 8$) with those whose behaviors had been continuously healthy or unhealthy, however, we found that all long-term health behavior changes were associated with life events.

Interplay of three Elements in the Life Course

We identified the "life course" as the overall theme in which life events take place by the interaction of three elements: The subordinate categories "inner world" and "living conditions" and the life phase as a reference framework. The inner world and the living conditions are continuously aligned against each other. If the inner world or (more often) the living conditions change in a life phase dependent manner the subject is forced to re-balance the two subordinate categories and adequately adopt its behavior, which results in a change of lifestyle [Figure 1].

Life Phase

The participants perceived the long-term change to a healthy lifestyle as a process dependent on the individual's life phase.

A lifestyle change is caused by re-balancing the inner world and the living conditions, which becomes necessary only if an event occurs that is deemed of major importance in the context of the current life phase. For instance, one participant associated her age with the risk of disease and disability; the birth of her grandchildren (a major life event) made her increasingly aware of the necessity to stay active and healthy. Another stated that he was not interested in physical activity at all when he was young and his experience of back pain as a trigger of behavior change was contextualized by his age, professional past, and relationship with his wife.

If no major life event occurs, the new behavior has to offer some form of immediate satisfaction in order to facilitate a behavioral change. However, no participant reported a long-term behavioral change that was initiated by experiencing pleasure of the new behavior.

Living Conditions

The category of living conditions represents the external determinants of a healthy lifestyle within the life course and covers the social environment and the health infrastructure.

Social Environment

The living condition mentioned most often was the social environment, including both the occupational and the private setting. Participants pointed out the relevance of the working environment and its influence on the experience of the stress of newly adopting a healthy lifestyle, illustrated by the following

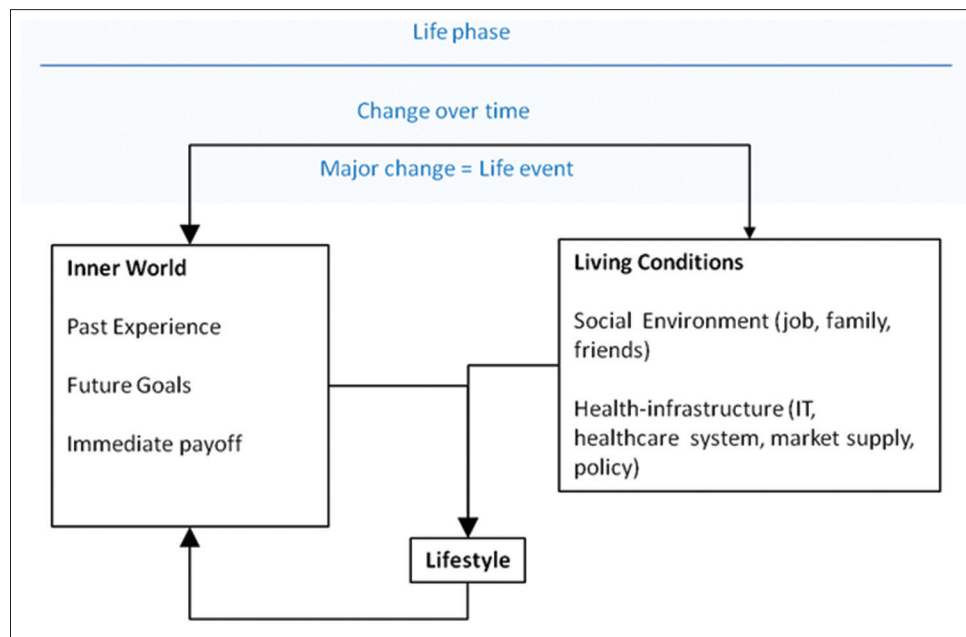


Figure 1: The influence of the life course on lifestyle change. The two categories "inner world" and "living conditions" influence each other albeit with a higher impact of the living conditions. Both categories are continuously balanced against each other, with the lifestyle as the resulting pattern of health behavior. If the living conditions change in a way that disables the reproduction of the lifestyle, a life event occurs. The internal motifs are rebalanced to the new set of living conditions in the context of the current life phase and the behavior is consequently changed. After the change, the subject re-enters the circle of establishing a stable equilibrium between behavioral patterns, inner motifs and living conditions

two statements: “I’m often simply lacking the opportunities to eat healthily...take the canteen for instance... there it starts...this whole city life with all its to-go products.” (III, 164) and “There are relatively few things to do against [breaking unhealthy lifestyle habits]... if you have a job and you are paid per hour and you are a key personnel, you are always under pressure. An external health service provider can help me relatively little.” (I, 149 f.)

The second environment that was highlighted as important was the private social network, including the partner, family, and friends: “I need certain support: My partner, friends, and so forth... I can talk to them... the social question is very important.” (I, 62 f.)

Health Infrastructure

The perspectives on the role of the physician and public health institutions in health behavior change were inconsistent. While most participants agreed that their general practitioners or health insurance companies played no role whatsoever in their healthy lifestyle, nevertheless the individually tailored communication and health messages, they provided were said to be helpful and influential.

The group discussions also indicated that IT devices for health behavior change necessitate social and individual framing and don’t suffice as a stand-alone intervention. Some participants argued that a healthy lifestyle tool should be implemented in the workplace and supported by the employer and the company medical officer to effectively initiate behavior change, while others claimed the need for an additional contact person, such as a health coach or a physician, who explains the application. It was also surmised that the usage of the tool in question depends on its potential user’s life stage and socio-economic position, and, generally, on its degree of individualization. There was a consensus that the initial motivation and risk situations (when the person faces a trigger for an old habit) are too heterogeneous and influenced by too many factors including the life phase to be solely facilitated by an IT device.

Inner World

The “inner world” embraces all inner motifs and cognitive processes quoted by the participants. This category is framed by past experiences and future goals.

Past Experience

Numerous participants highlighted the importance of past life phases or life events, with a wide range of reference points. Childhood experience and the influence of their parents appear to be more important for adhering to a healthy lifestyle than changing one’s behavior. One female participant, for example, said that her high level of physical activity was probably rooted in her childhood when she had spent a lot of time with her physically active father. Other participants, as previously mentioned, referred to past life events such as a change in

partnership or a pregnancy that motivated them to change their lifestyle and maintain it. Similarly, future life goals or plans represented another important reference point for the participants. These included role models, the general plan of a long and healthy life, the wish to stay or to become more attractive, or the fear of future diseases that are associated with health behaviors.

Future Goals

One participant, for example, stated that her relationship with her partner and the desire to continue this relationship into the future represent the crucial motivators for adhering to a healthy lifestyle: “I feel obliged to my love and I don’t want to lose it...” (II, 177 ff.). In the same vein, a female participant asserted her sense of responsibility: “[I have a] gigantic responsibility... not only to him [her husband], but also to people I’m dealing with in everyday life... and I can only bear this responsibility if I am really well as a human...” (II, 190 ff.).

Some participants had a role model with whom they had a personal relationship, for example, a grandmother, father, mother, superior, or older friend: “I have my own role model... he is a friend aged 86 and he is mobile and mentally in good shape...and I think: Yes, if he can do this, I can do it as well.” (II, 200 f.).

Immediate Payoff

Breaking a habit involves the overcoming of established behavioral automatisms and thus costs in the form of psychological stress. This was supported by the participants’ statements that short term costs and benefits play a vital role in long-term behavior change. Without a life event triggering the compelling need to change the lifestyle, participants reported on the difficulty of weighing the immediate and long-term costs and benefits of a healthy lifestyle against each other. The desire to adopt a healthy lifestyle at no cost, meaning without the unpleasant effects that come along with breaking a habit, was mostly mentioned by those who failed to acknowledge the long-term benefits.

For instance, attendees mentioned that a weight reduction program needs to show measurable effects in the short-term and physical activity necessitates the experience of physical wellbeing: “There was simply the experience that sport and exercise or a healthier life lifted me up...” (III, 35).

A comparison between the statements of health professionals and laymen revealed only a few differences. None of the health professionals indicated the need for an immediate payoff, but rather emphasized the long-term health effects of the measures and the difficulty of effectively communicating the benefits of a healthy lifestyle to a heterogeneous audience.

In summation, life events can trigger the search for a new equilibrium between long-term inner motifs and living conditions, whereas in the absence of a life event, immediate costs and payoffs of a new behavior may rise in relevance.

DISCUSSION

Summary of Findings

Our thematic analysis aimed to explore the mechanisms of long-term change towards the adoption of healthier behavior. The results showed that long-term health behavior changes occur as a response to life events, which force individuals to abandon established habits. These triggers accrue from the interplay of three life course elements: The life phase, a change in external living conditions (e.g. the social environment) over time, and internal motifs (past experience, future goals, and perceived immediate payoff). The internal motifs and external living conditions are continuously aligned to each other, with the life phase representing the framework of this process that results in a healthy lifestyle.

Comparison with Existing Literature

There are different points of contact between our results and the existing literature.

First, other research disciplines support our finding that experiencing immediate benefits in the lifestyle change process is important for successful adherence. One review on the psychological influences of weight loss maintenance found that the avoidance of eating to regulate mood and disinhibited eating, higher dietary restraint, perceived benefits outweighing costs, lower levels of depression, and a more positive body image are associated with weight loss maintenance [15]. In this context, behavioral economics indicates that individual preferences are inconsistent over time leading to a phenomenon known as present-biased preference [16]. People tend to value present costs and benefits higher than future ones. This could imply that an intervention aiming at health behavior change should rather try to increase the immediate enjoyment than to advertise the long-term health outcomes of the effort.

With regard to health behavior and life course, current empirical research covers the area of social relationships [17], stress [18], marriage [19], food choices [20], the SES [21], but the relevance of life events as possible trigger points in the formation and reproduction of lifestyle has been neglected by the medical life course research. Furthermore, the internal motifs identified by our analysis (past experience, future goals, and immediate payoff) are closely related to the sociological concept of self-identity [22]. The maintenance of one's self-identity has been described as an essential motif of people in general [22], and might represent a reason for failure to adhere to lifestyle changes that has not yet been addressed by medical research.

The relevance of critical life events to changing one's lifestyle are directly linked to the observation by Bourdieu that people tend to change their current habits only when facing a life crisis [23]. A couple of recent studies investigated the role of certain life events or life events in general in lifestyle change [10,11,24], introducing the idea of life events as triggers for a lifestyle change independent of sociological theories [8,9].

Our study hints that more research is necessary to better understand the trajectory of life course, major events, and health behavior. In particular, which pattern of life course, including current living conditions and the inner world, is sufficient to be perceived as a life event and to trigger behavior change remains unclear. It is possible that the participants experienced other events (e.g. pregnancy, disease) that they didn't report as life events because the individual context that provides the perceived significance was missing. Thus, what particular conditions constitute the experience of a life event?

Strengths and Limitations

The study has a number of limitations. First, we used a top-down analysis. In this context, it should be kept in mind that our reference frame was a sociological lifestyle theory whose use resulted in the overall life course theme and the causal relationships presented in Figure 1, whereas the categories identified in the inner world theme and the external environment differed from the reference model. An alternative set of pre-conceptions might have led to different results.

In the same vein, we assumed the existence of a mechanism of behavioral change and distinct determinants that drive this mechanism. A bottom-up thematic analysis might have found a non-mechanistic model or that the determinants are less clearly separable than our analysis suggests.

Third, the overall goal of our investigation was to explore how positive health behavior works in the long-term. Our study goal implicitly excludes behavioral changes leading to an unhealthier lifestyle. A debate, which includes positive and negative changes is likely to result in a different set of mechanisms. We did not limit the recruitment process to those who had experienced lifestyle changes in the past only, and those with no such experience were not treated differently in the focus groups. It is possible that personal experiences, opinions and assumptions on health behavior change were mixed up. On the other hand, we were able to compare people with and without previous lifestyle changes and consequently identify the impact of life events.

Finally, there are limitations on what can be generalized from qualitative data in general [25] and with respect to our study in particular: The study had a relatively small sample size and was conducted in Germany, which might restrict the validity of the results from an international perspective.

CONCLUSIONS

Long-term health behavior change follows a disturbed equilibrium between external determinants and internal motifs. Our results imply that a spontaneous change without life events as triggers is hindered by the habitual circuits that stabilize existing, undisturbed equilibriums. To support people in adhering to a healthier lifestyle, it might nonetheless be helpful to facilitate the individual alignment of internal motifs and living conditions in the context of the life phase. Further research is necessary to shed more light on the role of life events

and the life course in particular behaviors, and whether and how this evidence might help to optimize strategies to tackle unhealthy lifestyle habits.

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