Psychosocial resources in middle-aged and older adults with complex health care needs: results of a qualitative study

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Abstract

Background

Older adults with multiple chronic somatic diseases are challenged by mental comorbidities and social environmental changes resulting in complex bio-psychosocial healthcare needs. Comparatively few studies have addressed the coping strategies and resources of this highly vulnerable group. This study used the INTERMED interview method as a basis to investigate the resources of home-dwelling older adults with complex health care needs.

Methods

Following a randomized controlled trial this qualitative study analyzed detailed notes taken by a trained psychosomatic doctor during 24 interventional supportive counseling home visits. The randomized controlled trial participants were recruited from the ESTHER cohort study, a population-based study of older adults conducted in the state of Saarland, Southwest Germany. Patients with complex health care needs identified with the INTERMED interview received the supportive counseling home visit intervention, which followed the principles of narrative-based medicine and explored the personal resources of the participants. Notes from 24 supportive counseling home visits were analyzed using thematic content analysis.

Results

The qualitative analysis from 24 home visits identified 387 single codes, from which two main categories and 14 subcategories were derived. Participants with complex health care needs named currently available present resources and personal/long-lasting resources representing the main categories. Eight main categories were derived within the field of currently available resources that were deemed helpful to cope with the actual situation. Personal/long-lasting resources comprise statements that reflect personal experiential and attitudinal resources gained through socialization and internalization of interpersonal experiences.

Conclusion

The highly vulnerable group of complex patients reported many social, personal and structural resources that play significant roles in helping them to deal with their current situation. Home care professionals need skills to recognize and use the many different potential resources each client is able to access, which could enhance their well-being.

Background

Demographic changes are inevitably accompanied by an increase in the prevalence of chronic diseases and multimorbidity (1, 2). Older adults with multiple chronic somatic diseases are furthermore challenged by mental comorbidities and changes in their social environment, which result in complex bio-

psychosocial healthcare needs (3–5). From a bio-psychosocial perspective, a complex patient can be characterized as a person with clinically relevant somatic (biological), psychological and/or social problems with a high level of health care utilization (4, 6). Older, multimorbid individuals with complex bio-psychosocial healthcare needs have been demonstrated to experience a drastically reduced health-related quality of life (HRQOL) and increased psychosomatic burden compared to multimorbid people without complex healthcare needs (7–9).

Individual coping resources seem to have a major impact on the course of chronic diseases and moderate the way in which patients deal with their situation; however, qualitative studies regarding adults with complex health care needs are rare. Previous research has shown that personal resources play an important role in coping with chronic conditions and are inversely related to adverse clinical outcomes in older adults. In a prospective quantitative study that included 172 frail patients aged 70 years and older from a geriatric evaluation and management unit, Dent and Hoogendijk (10) found that frail older adults with low psychosocial resources had an elevated risk of adverse outcomes such as mortality, discharge to higher level care, prolonged hospital stays and re-hospitalization. In patients with heart failure, Kessing et al. (11, 12) found strong positive relationships between personal resources such as self-efficacy and mental well-being and self-care behavior.

Results of a previous study conducted by our research group adressing psychosocial resources of older adults emphasize that resources should be taken more into account in the care of older people (13). In this prior work, we found that complex participants (with a high bio-psycho-social vulnerability) reported coping resources (from a predefined list of 26 different categories) less frequently than non-impaired individuals. Further, complex participants reported coping resources and family the least frequently among other subgroups in the sample, even in comparison to frail and mentally ill participants. Interestingly, complex participants named external support (by medical staff or psychologists) as a resource significantly more frequently than other subgroups. We concluded that interventions in elderly people should integrate and consider the inner strengths older persons have achieved throughout their lives. Accordingly, between 2011 and 2014, we performed a randomized controlled trial that investigated the efficacy of a resource-oriented supportive counseling (home visit) intervention for elderly people identified as having complex bio-psychosocial health care needs according to the INTERMED interview (14).

As mentioned above, qualitative studies providing an in-depth analysis of home-dwelling peoples´ views are rare. During the home visit, a trained psychosomatic doctor asked participants to identify their resources and individual strengths (14). Participants were encouraged to tell their “story of coping” to explain their experiences. The nature of our resource-oriented supportive counseling (home visit) intervention approach followed the principles of narrative-based medicine, whereby patient stories provide insight into the "inner view" of disease by clarifying the biographical and social context of illness. Indications of coping strategies and potential for internal development can be identified despite—or precisely because of the challenging situation (15, 16). Thus, using qualitative research methods (17), we gained further insight and knowledge about the different facets of resources that were reported by elderly

people with complex health care needs during the home visits. The aim of the current study was to describe and gain deeper knowledge about the resources revealed by the older patients during the intervention in order to evaluate which resources could be targets of future interventions to enhance the coping capabilities of elderly individuals with complex health care needs.

Methods

Study design and setting

This qualitative study was based on detailed notes taken by a study doctor from a supportive counseling home visit during a randomized controlled trial (RCT) named “Short intervention targeting psychosomatic care in elderly patients with complex health care needs (ASSIST)” (the trial was registered at ISRCTN registry; registration number: ISRCTN79908237). The RCT participants were recruited from the ESTHER cohort study, a population-based study of older adults conducted in the state of Saarland in Southwest Germany (18). At baseline, in the years 2000–2002, 9940 study participants, aged 50–75 years, were recruited by general practitioners during a general health check-up that is free of charge for all German citizens. From 2011 to 2014, 4981 elderly people participated in the 11-year follow-up of the ESTHER study by returning a standardized questionnaire (response rate among study participants still alive and who did not actively withdraw consent to participation due to health reasons (n = 7981): 62.4%). All of these participants were invited to take part in a comprehensive home visit by a trained psychosomatic doctor, and 2761 out of the 4981 ESTHER participants agreed. Patients with bio-psycho-social complexity were identified using the INTERMED for the Elderly (IM-E) as an integrative assessment method by the research doctor. Participants with “high complexity” according to the IM-E (IM-E score ≥ 17) were invited to participate in the ASSIST RCT. Results of the main study have been published elsewhere (14).

All patients gave their written informed consent. The objectives of the study were communicated to the participants both verbally and in a written form.

Procedure and qualitative data gathering

The ASSIST RCT participants allocated to the intervention group (n = 88) received a supportive counseling home visit by a trained male psychosomatic study doctor who had a MD degree. There were no drop-outs during the study. The study doctor had undergone training in qualitative research methodology and was in psychotherapeutic training at the time of the study. He was also employed as a research assistant in the project. Following the principles of narrative-based medicine, as a main part of the intervention, strategies of supportive counseling were employed whereby participants were encouraged to tell their individual stories of coping with their complex health status. Prior to the start of the study, there was no relationship between the study physician and the study participants. The research doctor used an open question technique to stimulate the patients to tell their individual stories. The (face-to-face) intervention lasted approximately 90 minutes, during which the study doctor (IM) took detailed handwritten notes on the content while exploring resources and individual strategies with the participants.

Content saturation and sample description

Theoretical saturation was reached after the analysis and discussion of notes from 24 consecutive home visits. In the context of our study, saturation refers to the point at which further analyses did not provide new insights into the topic. Among the 24 participants, 12 were male and 12 were female, and the mean age was 71 years (± SD 6.5; range 62–85 years). The mean INTERMED score was 23.7 points (± SD 5; range 18–34).

Data analysis

The handwritten notes from 24 supportive counseling home visits were typed, and all data were managed and coded using qualitative data software (MAXQDA). Based on the typed notes, thematic content analysis was performed by two independent researchers (IM and CN) according to Mayring (19), which entailed discussing and reviewing the accuracy of the coding and defining a final set of resource categories and themes. We developed deductive categories for coding based on methods gleaned from theory and literature. During the coding process, we added inductive subcategories as they emerged from analysis of the material. Differences were discussed until consensus was reached.

Results

Main themes derived from 24 home visits

The qualitative analysis identified 387 single codes, from which two main categories and 14 subcategories were derived. Table 1 provides an overview of the main resource categories and respective subcategories and Table 2 delineates the illustrative quotations of all categories and subcategories. Our analyses showed that study participants named currently accessed resources and personal/long-lasting resources, which accordingly represented the main categories:

- **Resources available at present (current resources - CR)**, which were currently used by the patient to cope with their actual situation.
- We found a second main category that comprises resources acquired through lifelong experiences. These so called **personal/long-lasting resources (PLR)** include statements that reflect personal experiential and attitudinal resources.

Table 1
Overview of the main categories and respective subcategories from 24 home-visits

Resources available at present/Current resources (CR)
CR 1. Financial security
CR 2. Living space/environment
CR 3. Leisure activities CR 3.1. Social CR 3.2. Creative CR 3.3. Mental CR 3.4. Physical
CR 4. Spirituality
CR 5. Conscious health behavior
CR 6. Professional caregivers CR 6.1. Nursing staff CR 6.2. Psychosocial CR 6.3. Complementary medicine CR 6.4. Physicians CR 6.5. Medication
CR 7. Social environment CR 7.1. Pets CR 7.2. Reduction of social contacts CR 7.3. Integration and acceptance of losses of important persons CR 7.4. Family CR 7.5. Friends CR 7.6. Spouses
CR 8. The experience of self-efficacy and personal competence CR 8.1. Cognitive abilities CR 8.2. Competence in self-care CR 8.3. Competence in dealing with the healthcare system
Permanent/long-lasting resources (PLR)
PLR 1. Inner attitudes
PLR 2. Positive self-concepts
PLR 3. Memories of respect and recognition
PLR 4. Memories of important role models
PLR 5. Stress-related or posttraumatic growth
PLR 6. Legacy through the experience of caring for others

Table 2

Illustrative quotations of all categories and subcategories

Resources available at present/Current resources (CR) (n = 313)
CR 1. Financial security (n = 9): Financially, I am fine“; ”At the age of fifty, one had already earned a bit”; “Paid into Catholic family provision, thus financial support is secured”; “Financially secured, free from debt, own house
CR 2. Living space/environment (n = 20): Contacts in the surrounding stores, e.g., pharmacy, butcher's shop”; “In XXX (place nearby, approx. 1.5 km), you will find everything (hairdresser, doctors, pharmacies)”; “Go to the lake, just sit on the bench, see people…”; “Sit on the balcony and get some air”; “Lives gladly in the small town.”; ”Lives near shopping facilities, train station, family doctor…”; “Bought a house (old building), worked a lot on it (terrace, winter garden, balcony)”; “Like they used to, how you grew up, everyone had a kitchen garden behind the house. It's good for the soul”; “Being able to live in your own home... Everything is furnished so that I have it quite comfortably
CR 3. Leisure activities (n = 83): CR 3.1. Social: ”Drinking coffee with the neighbor from time to time”; “Senior dance group (for the past 8 years) with 15 women 1.5 h/week”; “Going to the shop, you always meet people, then you are informed about new things”; “I am still with the country women”; “You also come among people”; “I like to go somewhere”; “If I need someone now... I drive into town”; “They write a lot (with old schoolmates for example)”; “Work in clubs”; “A lot of talking, speaking, listening”; “Through my way (- he means a lot talking and actively approaching people), I have made a lot of friends”; CR 3.2. Creative: “Enjoys music”; “Likes to paint mandalas”; “Still works a lot (with fretsaw), builds church models”; “Still has a lot to do in the house (laying the floor)”; “Many hobbies: …, model railway, …”; “A lot of gardening”; “Nice festival in the church” CR 3.3. Mental: “Reads a lot”; “Biographies are best”; “Diary”, “Thought processes are written down”; “Reading newspapers”; “Watching television”; “Solving puzzles”; “When I am alone, I listen to a lot of radio”; “Reads a lot, worries about literature (cultural history)”; “He likes to deal with open questions about religion”; “Documentaries”; “Detective stories”; “Playing cards”; CR 3.4. Physical: “Walking”; “Sometimes exercise every day”; “Cycling. I don't want to go so far”; “Gym group every 14 days“; “I know how far I can go and how much I can do, and then I'll do it”; “(carries out newspaper) every morning, even in winter”
CR 4. Spirituality (n = 10): Faithful after a serious accident”; “If you are religious, then you are also looking for support, that attracts”; “Praying can help, I still do that,...that remains in, in the body, in the head…; “faith”; “Watches Bible TV”; “Faith plays a big role”; “Going to church as long as we can, that belongs to Sunday (as a fixed ritual)
CR 5. Conscious health behavior (n = 5): Healthy food”; “I always ate lots of onions”; “I have always tried to keep the weight”; “I can also say no if it tastes good”; “I have changed the diet

Resources available at present/Current resources (CR) (n = 313)
CR 6. Professional careers (n = 53): CR 6.1. Nursing staff: “Nursing services”; “The nurse is very sensitive”; “A nurse has given him courage” CR 6.2. Psychosocial provider: “It's really good for him to talk about it”; “Psychosomatic clinic”; “She could go to a nearby facility if she was compromised again”; “Social service comes regularly”; “Caritas (welfare) consultation once per month”; “ The priest, but I must like him"; “The xx (health insurance company), they listen to you, they have a contact person…”; “goes to a psychotherapist. It's good to talk to someone” CR 6.3. Complementary medicine: “He's seeing a healer. As soon as he returns, he'll be fine”; “Alternative practitioner, Reiki, Osteopathy”; “frankincense helps with pain and inflammation”; “Flower pollen protects vessels”; “The non-medical practitioner has tables and explains everything”; CR 6.4. Physicians: “He trusts his doctor”; “He is very satisfied with his family doctor”; “She is a friend of the family doctor”; “You have to find the right doctors for the various diseases”; CR 6.5. Medication: “The best drugs”; “Painkillers work great!”; “Morphine”; “Medicines for the psyche”
CR 7. Social environment (n = 113): CR 7.1. Pets: “The dog sometimes brings distraction”; “My cat”; “He now also has a rental dog to walk from the neighbor” CR 7.2. Reduction of social contacts: “They taught me to be "colder" to my son (to distinguish myself better)”; “Few social contacts”; “Separation from her husband”; “She prefers to be alone”; “I am better now, my wife did not tolerate me at all”; “I prefer to be alone”; CR 7.3. Integration and acceptance of losses of important persons: “Living apart now, everything's fine now”; “Regarding son: is satisfied now (with the relationship), there is nothing more” CR 7.4. Family: “Cohesion in the family (children, wife)”; “some of the children live nearby”; “the daughter moves back”; “The son passes by almost every day”; “The family is the focus”; “The son helps with heavy work”; “The daughter cooks for him every day, the daughter takes care of everything he needs”; “The grandchildren often give pleasure as well”; “Contacts: mentally and physically busy through her own family”; CR 7.5. Friends: “We still have contact to two couples”; “There is still contact to a former work colleague”; “Every 2 months he talks to a friend. Conversation is a pleasure”; “You know all the people in the village”; “The neighbor also helps”; CR 7.6. Spouses: “Another source of strength for him is his second wife”; “The solidarity with his wife”; “The partner: a very nice person, what he already had patience with me...”; “He won't leave me alone and listens to me”
CR 8 The experience of self-efficacy and personal competence (n = 20): CR 8.1. Cognitive abilities: “I may be old, but I'm not stupid”; “I am skilled with the Personal Computer”; “I'm still very happy with my mind”; CR 8.2. Competence in self-care: “I like to clean up”; “I can still move by car on my own”; “Being able to decide for herself; “It's just that he has managed it”; “Does everything else in the household (laundry, cooking)”; “Cooks for himself, does everything himself”; “Washing must go alone”; “Breakfast she does herself”; “She does her groceries regularly”; CR 8.3 Competence in dealing with the healthcare system: “I can say who is a doctor and who is not”; "I call the ambulance if something is wrong"; "I have become an expert".
Permanent/outlasting resources (PLR) (n = 74)
PLR 1. Inner attitudes (n = 22): "If you talk about it, you puke out"; "I'm happy and happy to be alive"; "I know how far I can go and how much I can do and then I'll do it like this"; "You don't even know how long you'll still be alive and if it comes to that, you can still find a solution”; "You have to get it right"; "You mustn't get hung up"; "Can't hang me now"; "Got to get along with life"; "Just keep going"; “Must be! What's the point of that? Forcing me out"; "One should not let oneself hang"; “If one lets one's head hang, one stays lying"; "One must have plans"; "One is still better off than many others"; "Either one perishes or one becomes stronger"; "God chooses the little thing when he has big plans”; “For healthy people life is limited and for sick people too”; “a certain fatalism can also help: That's just the way it is”

Resources available at present/Current resources (CR) (n = 313)
PLR 2. Positive self-concepts (n = 8): “I was proud when the others didn't want to do the work. Then I said, I'll do it”; “I am an optimistic person”; “My being stubborn/bull-headed helped me with my health”; "Every time something happens to me, I am completely calm. Then one step at a time"; “I've got a strong will”; “A man who removes the mountains”;
PLR 3. Memories of respect and recognition (n = 10): “I was school president”; “I was respected in the party“; „I was a councilor”; “I was the leader of the labor movement”; “As soldiers we have received much recognition”; “I was a track and field champion”; "I was the proudest person in the world"; "Much recognition from the family"; "Painting was the only thing my mother praised me for";
PLR 4. Memories of important role models (n = 4): He always managed everything“(father); “Mother always said "Don't give up." Mother has turned 100 y”; “a family that supports you”; The head physician in the clinic (psychosomatics) said: "Give me the calmness to accept things that I cannot change"; “Met an artist in the 70´s, watching him at work and said to myself: "I can do that too".
PLR 5. Stress-related or posttraumatic growth (n = 17): I was in the war. I came home from war captivity in 19xx”; “Memories keep me alive. Memories of how miserable he was, he thinks: You were still lucky”; “Had a stroke, fought my way back to life in rehabilitation”; "When the father died or when the mother died, I can still draw a lot of strength from it"; "Defeats: Then I write down where I can intervene ("inventory list")"; “Much seen and experienced, also in the family during the war”; “If you have to watch your mother cheat all the time and do all the work, nothing can happen to you. That has shaped (personality)”; “In the past in xxx (Eastern Europe), many things were different: less holidays, living with many people in a small house”; “The butcher's shop only had tomato juice and who has experienced such times...
PLR 6. Legacy through the experience of caring for others (n = 13): I'd like to help someone. Once in my life I saved someone's life”; “Elderly care”; "I know he still needed me" This is good; I try to help with my possibilities. (Wife has cancer); “She cooks for her grandson”; “I was the one who got the kids out of mess”; “She took care of her husband. She was supposed to " Give him a good life";” In the past he had often been asked for help by others

The derived themes and corresponding quotes as smallest unit of meaning (17) are presented below:

Current resources (CR)

The supportive consultation focused on the currently still available resources. As elucidated below, eight main categories were derived within the field of current resources that were present and helpful to cope with the situation.

CR 1: Financial security and financial reserves, respectively, were mentioned as important structural resources. Many participants (if possible) had begun making financial provisions at an early stage to avoid being in need during their old age.

CR 2: Living space/environment played an important immediate role. The category of current living environment comprised the availability of a good infrastructure with all necessary shops, pharmacies, medical practices, and other resources for self-care. This category also included the landscaping of the

surroundings or the design of the participants' living spaces as significant elements to maintain well-being, and leisure activities also had a high value in enhancing well-being.

CR 3: Leisure activities with different focuses (social, creative, mental and physical) were named as considerable current resources. Leisure activities included social activities with individual persons or in the context of association activities. Several quotes regarding social activities included visiting places where accidental encounters occurred. The subcategory of creative activities encompassed activities in which the participants created something artistic, such as music, poetry or painting, but also hobbies like model building. Mental activities often comprised the reception of information or entertainment (written or through the media) or the mastering of mental tasks.

CR 4: Spirituality was named by some participants as an important resource to cope with their situation. This category included regular spiritual practices, participating in social religious activities such as visiting a church and increasing faith due to adverse life events (e.g., occurrence of a serious physical disease).

CR 5: Conscious health behaviors, such as a healthy diet or increased exercise to promote health, were identified as a source of strength in some participants. The possibility of influencing one's own health through a distinct behavior and thereby gaining a feeling of autonomy and control played an important role for some participants´ well-being.

CR 6: Professional caregivers had a significant function. Participants named physicians, nurses, psychosocial professionals, and complementary medicine providers (i.e., non-medical practitioners) as important protagonists for the preservation of their bio-psychosocial health.

CR 7: Social environment was named very frequently and in many different forms, including family members, friends, neighbors and partners. Both socially isolated and well-integrated participants named pets as important resources. Some participants experienced the reduction of social contacts as a source of strength (classified as CR 7.2.). More specifically, this category included the restriction of social relationships to a few important persons or the reduction of more strained or stressful relationships. These severances included divorces as well as reduced contacts with their own children, in cases when these were very troubling. For example, one (male) participant reported having a son who was an alcoholic and kept persuading him to give him money.

CR 8: The experience of self-efficacy and personal competence was identified as being a significant resource for the participants. These included currently perceived mental capacity, the current ability to care for oneself and a perceived routine in dealing with healthcare agencies and their employees (mostly physicians). Participants gained self-efficacy through a sense of control (mastery) in coping with their everyday lives, as well as through perceived self-confidence in interacting with protagonists of the healthcare system.

Personal/long-lasting resources (PLR)

PLR imply statements that reflect personal experiential and attitudinal resources gained through socialization and internalization of interpersonal experiences.

PLR 1: Inner attitudes encompass guiding principles, or values, that gave the participants a basic foundation from which to make decisions and take actions in an increasingly complex situation. This category included perceptions, emotional dispositions, judgements and reactions to various situations. Most of the statements assigned to this category related to attitudes toward dealing with burdens/challenges.

PLR 2: Positive self-concepts: as a broad personality trait, this category comprises statements with regard to positive self-evaluations. These could be slogans or metaphors with which the participants described their attitude toward themselves.

PLR 3: Memories of respect and recognition by others. The experience of having been approved and recognized by others through social persuasion was named as an important enduring resource. This category also included memories of practicing socially recognized roles in the community, whether at work or during leisure time.

PLR 4: Memories of important role models imply direct experiences with admired persons or “idols” or the vicarious experiences provided by social role models in the past. In some cases, participants also named personally significant statements recalled from past encounters with psychotherapists that provided them with a learning experience as a result of a sustainably effective therapeutic intervention.

PLR 5: Stress-related or posttraumatic growth includes stressful past experiences that resulted in stress-related or posttraumatic growth and thus enabled a less severe appraisal of the current situation. Many participants had experienced indirect or direct consequences of the Second World War (1939–1945). The lessons derived from previous coping with stressful experiences were an important enduring resource for most participants that impacted the evaluation of their current situation. Some participants reported that they had undergone significant psychological shifts in thinking and relating to their lives in the course of a personal process of change due to the experience of suffering.

PLR 6: Sources of meaning in life such as achieving a legacy (which is given or conferred) through the experience of caring for others had great significance for the participants who mentioned them. The perception (or experience) of having contributed to the well-being and welfare of other people was expressed as a source of deep satisfaction.

Discussion

We aimed to assess resources that were reported by elderly patients with complex health care needs during a supportive care intervention. Most of the statements were made with regard to current resources. Leisure activities (CR3), professional caregivers (CR6) and support from the social environment (CR7) were identified as the most important and the most frequently mentioned resources. Therefore, we

discuss the above-mentioned selected categories against the background of previous empirical findings and some prominent gerontological theories. Further, PLR are given particular attention.

Theories of successful ageing

Gerontology has provided various important frameworks to describe successful ageing (20). The most prominent elements of the selection, optimization and compensation model (SOC) have been largely investigated in the elderly population (21, 22). SOC is regarded as a powerful action strategy to cope with age-related changes in resources. Overall, the SOC model suggests that available resources can be used more efficiently by selecting fewer but carefully chosen goals (S - one can’t have everything), pursuing these goals optimally (O - practice makes perfect), and addressing barriers through compensatory means (C - there are many hands; what one cannot do, the other will). Principles of SOC were applied by the participants of our study with regard to leisure activities (CR3) and the social environment (CR7). Many people apply the principles of SOC intuitively, yet providing knowledge about such approaches could be helpful to caregivers. Research in several settings implies that individuals can be trained to use SOC-strategies (23). This could be particularly important for treating patients with complex needs.

Leisure activities (subcategory CR 3)

Leisure activities were identified as considerable current resources. The participants focused on activities that they could still perform well or adjusted the intensity. As one respondent reported, "I know how far I can go and how much I can do, and then I'll do it". Some leisure activities were carried out with a high level of commitment and effort, such as in the case of the participant who “still works a lot (with fretsaw), builds church models”.

Creative activities (CR 3.2) played an important role in the lives of many complex participants. Such endeavors included both arts and crafts activities, which engaged some participants for many hours of the day. The work of Seligman and colleagues in pioneering positive psychology established a foundation for the study of life satisfaction and the endorsement of different ways to be happy (24). Csikszentmihalyi (25) identified involvement and engagement in the context of creative activities as such a method. Involvement goes hand in hand with an “experience of flow” that is, inter alia, characterized by loss of self-consciousness and a distortion of the sense of time in the context of a focused activity. Flow seems to be positively related to HRQOL (26). Therefore, the promotion of such activities, which can be carried out by someone alone, could be important, particularly for complex people, who often cite participation in fewer social resources than other elderly individuals (13).

Social environment and professional caregivers (subcategories CR 3 and CR 7)

During our intervention, we explored numerous resources of the participant´s social environment. In our previous investigation, complex individuals named family least frequently in comparison with the total sample, but also compared to (non-complex) mentally ill participants. Rather, professional help or support

(by professional caregivers such as medical workers or psychologists) was named significantly more frequently by the group of complex participants (13). According to our current findings from the home visits, both regular, superficial contacts and deeper relationships appear to be very important. Family members could play an important role in organizing care, and contacts with neighbors create the perception of being embedded in a community. In recent years, research has demonstrated that perceptions of social isolation or loneliness—i.e., the “pain of social disconnection”—is strongly related to mental and physical health, including mortality and morbidity (27–29). Relationships with family, friends and partners have been widely cited as a beneficial factor to protect against loneliness. Professional caregivers can also play an important role dealing with social isolation and loneliness, which are of particular concern for complex people with few social resources. Professional support can facilitate the development of a social network, or else the relationship offered by caregivers could be a useful working mechanism to fight against perceived social isolation.

Personal/long-lasting resources (PLR)

Participants reported inner attitudes (PLR 1) (including values), positive self-concepts (PLR 2) and receiving recognition from others (PLR 3) as personal resources. Narratives regarding important role models (PLR 4) may play an important role in the definition of one´s identity as a source of strength. People internalize a map or model of their social environment. For example, participants who saw their parents as role models with many of their own resources and high levels of resistance could have developed similar protective factors. Another experience mentioned by participants was caring for others as a source of meaning (PLR 6), which has been widely cited as an important element of life satisfaction (24).

Another long-lasting resource derived from biographical experience was posttraumatic growth (PLR 5). Participants described burdensome experiences from which they subjectively had emerged stronger. One participant reported that difficult memories from the past sustain him in the present and inform his evaluations of the current situation. Further, traumatic experiences due to health complaints were also reported; for example, one participant had to fight his way back to life during rehabilitation after a stroke. People with complex health care needs particularly have to live with multiple adverse conditions. Most of our participants struggled with serious diseases such as cancer and the consequences of multimorbidity with emergency hospitalization and the accompanying complications of medical treatments. Although such experiences can cause chronic mental distress, positive effects have been found of struggling with traumatic events, and the so called concept of (self-perceived) posttraumatic growth (PTG) has been described as a coping mechanism or positive outcome of adverse events (30). To-date to our knowledge, no studies have been conducted regarding possible associations of PTG with multimorbidity or complexity. From a clinical point of view, it seems important to raise caregivers' awareness of the possibility of growth as a consequence of adverse conditions to broaden their perspective; however, further quantitative and qualitative research has to be done.

Comparison with qualitative studies from nursing research

Overall, the categories we generated partly correspond to the results of qualitative nursing research investigating the resources of home-dwelling older people. Turjamaa and colleagues investigated resources of home care clients from the perspective of 32 home care professionals in a qualitative study design (31). In evaluating the content of focus groups with home care professionals, the authors identified four main categories and several subcategories of resources that resembled our findings, such as environment, activities, support from family/friends, and meaningful life. However, their perspective seemed to be focused primarily on the physical needs of existing clients, and psychosocial resources were not investigated. Conversely, the study provided a broader concentration on the professional´s perspective and incorporated a more holistic focus on the situation of clients with complex bio-psychosocial health care needs. Our study extends scientific knowledge regarding the complex patient's perspective.

In the case of hospitalized frail elderly patients, other studies have demonstrated an increased likelihood of adverse outcomes such as length of hospital stay, mortality and emergency re-hospitalization when psychosocial resources such as sense of control, social activities and home/neighborhood satisfaction received low ratings (10). These results from inpatient care suggest that these elements are also highly relevant for many elderly people living at home. However, in comparison to home-dwelling people, hospitalized frail patients are at higher risk at developing more severe disabilities. Thus, it seems essential to focus on the importance of prevention, as the strengthening of existing resources should not only take place when individuals already have considerable disabilities leading to hospitalizations.

Significance of qualitative results for the Interpretation of the RCT results

With regard to the intervention (randomized controlled) study in which our qualitative study was embedded, it is important to note that participants of the intervention group showed significantly lower health care needs at the long-term follow-up after three years compared with the control group (14). It is possible that the strengthening of resources was one of the working mechanisms contributing to this difference; however, this suggestion remains speculative, as we have not surveyed resources either quantitatively or longitudinally. We recommend that resource inventories be developed and evaluated based on existing evidence that could be used for intervention purposes as an important next step.

Strengths and limitations

The major strength of our study is its originality in being the first investigation of the resources of community dwelling adults with complex health care needs as part of an interventional study. The specifity of our sample (people with bio-psychosocial complexity as defined by the INTERMED that were visited by a trained study doctor) allowed us to examine the resources of this highly vulnerable group in greater detail through the application of qualitative research methodology. Our findings on resources can expand knowledge of the situation of complex patients in the elderly population and inform the design of clinically relevant guidelines for the care of this patient group. However, our study also has several limitations that should be noted. First, the investigation of the selected and small sample limits the

generalizability of our findings. Second, data were gathered by means of handwritten notes, whereas most qualitative studies in the healthcare sector are based on verbatim transcripts of audio-taped interviews. It is possible that relevant information could not be collected or was lost. This peculiarity is due to the study setting. However, as our sessions had a clear purpose/focus (the exploration and description of resources), the loss of relevant information seems unlikely. This type of data collection was sufficient to address our research aim without disturbing the participants, who gave us access to their very private living environments.

Conclusions

Our qualitative results indicate that many highly vulnerable complex patients have a variety of social, personal, and structural resources that play important roles in helping them to deal with their current situation. This finding could have implications for further research and patient care. Future interventional studies with multimorbid patients with complex healthcare needs might investigate strategies to explore new resources and strengthen existing ones in order to improve quality of life and their ability to cope with their situation. Home care professionals need skills to recognize and use the many different potential resources each client is able to access, which could significantly enhance their daily living.

Abbreviations

ASSIST: "**ASS**essment and short **I**ntervention targeting psychosomatic care in elderly patients - a randomized controlled **T**rial"; ESTHER: "Epidemiologische Studie zu Chancen der Verhütung, Früherkennung und optimierten Therapie chronischer Erkrankungen"- Epidemiological study on the chances of prevention, early detection, and optimized therapy of chronic diseases; HRQOL: health-related quality of life; IM-E: INTERMED for the Elderly; CR: current resources; PLR: personal/long-lasting resources; SOC: selection, optimization and compensation model; PTG: posttraumatic growth

Declarations

Ethics approval and consent to participate

The study was approved by the ethics committees of the University of Heidelberg and the medical board of the federal state of Saarland, Germany. All patients gave their written informed consent.

Consent for publication

Not applicable.

Availability of data and material

The datasets generated and analyzed during the current study are not publicly available due to the need to protect the confidentiality of the participants; however, they are available from the corresponding

author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

IM and BW initiated and designed the study. SW, FB, CN, BS and WH all contributed to the study design. Fieldwork and data collection was carried out by IM. Coding and categorizing of the interviews was conducted by IM and CN, as well as discussed with all other authors (BW, SW, FB, BS and WH) continuously in the process of the analysis until consensus was reached. The paper was drafted by IM. All of the authors read and approved the final manuscript.

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