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Daily life one year after corrective osteotomy for malunion of a distal radius fracture an interview study

Ingrid Andreasson^{a,b} , Gunnel Carlsson^c, Gunilla Kjellby-Wendt^{b,d}, Jón Karlsson^{a,e} and Monika Fagevik Olsén^{b,d}

^aDepartment of Orthopaedics, Institute of Clinical Sciences, the Sahlgrenska Academy, University of Gothenburg, Sweden; ^bDepartment of Occupational Therapy and Physiotherapy, Sahlgrenska University Hospital, Gothenburg, Sweden; ^cInstitute of Neuroscience and Physiology, the Sahlgrenska Academy, Gothenburg University, Gothenburg, Sweden; ^dDepartment of Physiotherapy, Institute of Neuroscience and Physiology, the Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden; ^eDepartment of Orthopaedics, Sahlgrenska University Hospital, Mölndal, Sweden

ABSTRACT

The aim of this study was to explore the everyday life experiences of people one year after corrective osteotomy following a symptomatic, malunited, distal radius fracture.

Semi-structured interviews were conducted with twenty respondents, median age 65 (22–81) years. The respondents were recruited consecutively. The interviews were subjected to qualitative content analysis. Three authors took part in the analysis.

The result is presented as one theme, ‘Daily life works again’ with five categories: Relief of inconveniences and symptoms, Managing new symptoms and complications, Regaining abilities, Normalised social relationships, Increased wellbeing. The symptoms had declined in severity, some participants regarded themselves as fully restored and used their hand again without hesitation. Others were still bothered by their wrist occasionally and a few had to manage complications. The participants had regained the ability to perform many everyday life activities and reported increased independence and less irritation between spouses, as well as increased wellbeing.

One year after a corrective osteotomy following malunion of a distal radius fracture, the patients’ experiences represent a continuum. Some are still restricted by their wrist occasionally, the majority experience an increased ease in their performance of activities of daily life and some regard themselves as fully restored. The recovery has a positive impact on social relationships and the patients’ wellbeing.

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Fracture of the distal radius is one of the most common fractures overall. It occurs at all ages and is mostly due to a fall on an extended arm [1]. The overall incidence in adults varies between 10–30 per 10,000 person-years [1,2]. Two groups that run a high risk are children/adolescents and postmenopausal women with incidences of 40–90 vs. 60–120 per 10,000 person-years [3,4].

Displacement occurs in up to 35% of non-surgically treated distal radius fractures [5]. Left untreated, fracture displacement may lead to malunion, one of the most common complications [6]. Wrist function is important for the ability to perform different activities, as the wrist is important for positioning the hand [7,8]. Malunion may lead to residual pain and restricted range of motion, thereby reducing the ability to perform activities [9,10]. Between 15% and 30% of non-surgically treated patients have various persisting disabilities [9,11]. Difficulty performing activities may in turn hamper the ability to maintain important life roles [11,12]. Accordingly, a reduction in the ability to perform activities may in turn reduce participation and health-related quality of life [13,14].

Corrective osteotomy is a surgical intervention that aims to restore the anatomy of the wrist and improve function. Osteotomies may be undertaken when the patient suffers from

persistent pain and dysfunction and malunion is verified radiographically [15]. Various methods for performing an osteotomy at the healed fracture site and reducing the fragments of the distal radius have been described [15–17]. For fixation of the osteotomy volar locking plates and screws are used [16].

Evaluation of treatment of orthopaedic injuries has traditionally been focused on radiological aspects, grip strength and range of motion (ROM). More recently, a shift towards evaluating outcome by using different patient-rated outcome measurements (PROMs) and thereby including the patients’ experiences and opinions has occurred [9,11]. However, even PROMs do not cover all symptoms, activities or aspects of importance to the individual patient [18]. One way to obtain an even more detailed and deeper understanding of experiences related to daily life is to conduct interviews and thereby let the voices of the patients be heard. A qualitative approach can contribute with knowledge on what kind of difficulties patients encounter in their daily lives and the emotions related to this [19]. In this article the ontological assumptions are that reality is subjective and differs between individuals. The epistemological assumptions are that meaning and knowledge of different phenomena are context bound and socially constructed. When a phenomenon is under study there is an

CONTACT Ingrid Andreasson  Ingrid.f.andreasson@vregion.se  Department of Occupational Therapy and Physiotherapy, Sahlgrenska University Hospital, Mölndalsvägen 31, Mölndal, SE-431 80, Sweden

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interaction between the researcher and the respondent and they will mutually influence each other [20].

An earlier interview study, conducted prior to corrective osteotomy, showed that a malunion of a distal radius fracture had a great impact on the everyday life of patients [10]. To our knowledge, there are no qualitative studies related to experiences of daily life after corrective osteotomy following the malunion of a distal radius fracture. Interviewing patients one year after corrective surgery could contribute knowledge of how patients experience their wrist function in activities and how this in turn influences them in their daily lives. This is a poorly investigated area and a more detailed knowledge relating to experiences concerning daily life after corrective osteotomy is valuable, both for patients considering surgery and for caregivers.

Study aim

The aim of this study was to explore the everyday life experiences of patients one year after a corrective osteotomy following a symptomatic, malunited, distal radius fracture.

Methods and respondents

The study was conducted at a university hospital with a large orthopaedic unit in a city in the western part of Sweden. The patients' symptoms first and foremost, but also the radiographic appearance of the healed fracture, are taken into account when the decision is made to perform the surgery [15].

For this qualitative interview study, patients, aged 16 years or older, were consecutively included one year post-operatively [19]. Based on principles of information power and given the broad aim of the study a sample size of 20 participants was considered large enough to capture a variety of experiences [21]. The exclusion criterion was not being able to communicate in Swedish without an interpreter. Twenty-four subjects were invited to participate, representing the total number of eligible patients. Two women (52 and 55 years old) declined participation, one due to time constraints, while the other was on sick leave for reasons other than the wrist. Twenty-two respondents were interviewed, since two interviews were excluded from the analysis. One woman was shown, during the interview, to suffer from a

comorbidity that affected her hand function and this interview was not analysed. Concerning one young man, it was detected after the interview that the implant had failed and the fracture had lost the reduction. The latter was considered being a complication not normally taken into consideration following osteotomy, and it was deemed this interview should not be included in the analysis. The patient was offered re-surgery.

One year post-operatively, the patients were contacted and informed about the study by the main author by phone, after which they were invited to participate. The interviews lasted for between 9–63 min with an average of 29 min.

The study group consisted of 16 women and four men, median age 65 (range 22–81) years. The data were collected between July 2016 and January 2018. Six patients had sustained an injury to their dominant hand, while 14 had sustained an injury to their non-dominant hand. Initially the patients were non-surgically treated, 14 had displaced fractures that were reduced and 6 had non-displaced fractures.

Five participants suffered from complications of different kinds that required secondary surgery after the osteotomy. Three had undergone secondary surgery during the year after the osteotomy; one following median nerve compression and two due to ruptures of extensor tendons. At the time of the interviews, two of the participants were on the waiting list for secondary surgery, plate removal and, for one of them, a concomitant shortening of the ulna. For demographics, see Table 1.

The semi-structured interviews were held by the main author, who is an occupational therapist, with clinical experience of this patient group. The main author did not monitor the rehabilitation of the participants. One interview was conducted in the participants' homes, while the rest were held in a separate room at the occupational therapy unit. The initial question was 'Would you please tell me how your wrist functions in your daily life now, one year after surgery?' The respondents were encouraged to speak freely from the heart and the interviewer used open-ended follow-up questions such as 'Would you please elaborate on this?' when needed. Areas of questioning were activity performance in personal care, housework, work, transportation and leisure. Other topics of questioning were relationships, social life, appearance of the hand and rest/sleep. To ensure conformability in terms of participant checking, the interviewer used the technique of

Table 1. Demographic and clinical characteristics of the participants. *N* = 20.

Gender	Age	Living situation	Occupation	Injured side	Initial treatment	Months injury-osteotomy
male	50	alone, children	office worker	non-dominant	non-reduced	34
female	67	partner	retired	dominant	reduced	23
female	67	partner	retired	dominant	reduced	36
female	53	partner	office worker	dominant	reduced	21
female	81	alone	retired	non-dominant	non-reduced	6
female	49	partner, children	office worker	dominant	reduced	24
female	68	partner	retired	non-dominant	reduced	14
male	55	partner	mechanic	non-dominant	reduced	12
female	67	partner	retired	non-dominant	non-reduced	7
female	66	partner	cleaner	non-dominant	reduced	9
male	61	partner	caretaker	non-dominant	reduced	16
female	76	partner	retired	dominant	reduced	8
female	68	alone	retired	non-dominant	reduced	17
female	65	alone	retired	dominant	reduced	21
female	54	alone	office worker	non-dominant	reduced	156
female	70	partner	retired	non-dominant	reduced	5
male	22	alone	student	non-dominant	non-reduced	14
female	58	partner	health care	non-dominant	reduced	48
female	39	partner, children	health care	non-dominant	non-reduced	10
female	64	partner	office worker	non-dominant	non-reduced	12

constantly confirming and clarifying information during the interviews [22]. The interviews were recorded and transcribed as close to verbatim as possible. When it was not possible to hear what the respondent said, a comment on this was made in brackets. To enhance understanding, small comments by the interviewer such as 'aha' were not transcribed and grammatical errors were corrected [19].

Content analysis, as described by Graneheim and Lundman [23,24], was the analysis method. It aims to describe differences and similarities in texts. In texts, there is both a manifest content and a latent content, which is related to the underlying meaning of the text. The context in which the text was created is important, as there may be more than one interpretation. The transcribed interviews were read through several times to get a sense of the whole. Each interview was considered to be one unit of analysis. Meaning units were coded, to describe their content, after which the codes were put together as categories, based on what they described. The main theme, which can be seen as the 'red thread' of meaning through the interviews, was derived from the categories. To enhance trustworthiness, the main author and two of the authors, one occupational therapist and one physiotherapist, cooperated during the analysis by discussing the accuracy of the codes, the categories and the theme. During the analysis it was emphasised that the parts corresponded to the whole [23,24].

Ethics

The study was performed in line with the principles of the Declaration of Helsinki and approved by the Ethics Committee in Gothenburg, Sweden (no. 044-16). All the respondents were informed about how the data would be analysed, they were assured of confidentiality and gave their written, informed consent prior to the interviews. At the time the study began, it was not a prerequisite to register studies elsewhere.

Results

One year after surgery, the experiences of the participants differed. The participants experienced a relief of different inconveniences and symptoms. Some had to manage new symptoms or complications after surgery. The participants had regained the ability to perform different activities, but some were still restricted by their wrist occasionally. Their social relationships had normalised, due to independence regained from others, for example. The participants were feeling better. For example, they felt pleased when considering the things they were able to do and they felt they were more like themselves again. The participants were also confident that further improvements would occur. Even if some functional deficit was still present for some participants and everything did not work perfectly well, the participants described that, taken as a whole, daily life worked again.

During the analysis, five categories were identified: Relief of inconveniences and symptoms, Managing new symptoms and complications, Regaining abilities, Normalised social relationships and Increased wellbeing. From the categories one main theme was derived: Daily life works again.

The results are presented as one theme with five categories (Table 2).

Each category is described in detail below. Quotations, with identifying numbers, are given to illustrate the findings.

Relief of inconveniences and symptoms

The participants noted that their way of moving their wrist was more normal, when taking a top off, or working at the computer, for example. They compared the mobility in their wrist with that in the uninjured wrist and noted the improvements. They were able to fold their arms in front of them again. Moreover, their arm was no longer a troublesome object, which had to be placed carefully while sitting for a long time in a chair, such as going to the cinema. The participants also described with relief that they were able to put their arm as they pleased even when lying in bed.

Before, no position of my wrist was good enough and, whatever position I put it in, it was uncomfortable. It isn't like that anymore ... (8:127–128)

A few participants still had to move their arm differently from normal in certain activities, because of some residual stiffness in the wrist, and they complained of pain in the elbow or shoulder. To a much smaller extent, pain in the wrist, varying from a little pain occasionally after extensive use of the hand to greater problems, was still present for some participants. However, the pain was less intense and disappeared more quickly than before. The pain was sometimes described in terms of exercise pain, which has a positive meaning. Moreover, pain in the arm was no longer a problem during the night.

The participants said that they had more strength in their wrist and hand, but a few of them still experienced some weakness. It was a cause of disappointment when the expected recovery from different symptoms did not occur.

The wrist looked more like before, which was mentioned with gratitude. The participants appreciated the great difference from before surgery. The better appearance of the wrist contributed to a sense of normality. Some said that the functionality of the wrist was of greater importance than the appearance, but they were still pleased that their wrist looked better.

Managing new symptoms and complications

The participants sometimes had to face and handle new symptoms, like tingling sensations on the dorsal side of the hand, numbness in the hand and tenderness around the scars.

Somewhere here, by the scar, it's tender and, if I put my wrist on a soft pillow, it may still be painful. (20:21–23)

A few found the appearance of the scars disturbing and concealed them by using bracelets. Others had accepted the scars and mentioned that their scars were fine and were not so noticeable. One participant even thought the scars looked 'cool'. A few experienced restricted mobility of a finger or thumb following scarring between tendons and the soft tissues in the healed wound. Some could feel the plate when placing their wrist on a surface such as a desktop or a laptop, which was described as very unpleasant.

Some participants had experienced complications. Ruptures of extensor tendons had had to be surgically treated during the first

Table 2. The results are presented as one theme with five categories.

Daily life works again	Relief of inconveniences and symptoms	Managing new symptoms and complications	Regaining abilities	Normalised social relationships	Increased wellbeing
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year and the participants still struggled to regain function. The decreased mobility in the thumb or index finger affected the participants' ability to perform different activities.

I had my operation in July and then I had to undergo surgery again, in September, to shorten a couple of the screws ... and then in November the thumb started to be weird ... I felt something was not right, and it wasn't ... I believe I'd be more positive if this had not happened to my thumb. Now I feel the thumb prevents me doing things. (16:67–71)

A few participants were waiting for additional surgery (plate removal and, for one individual, concomitant ulna shortening) and they hoped it would remove their discomfort.

Regaining abilities

The participants used their injured hand in daily life without thinking of different strategies to manage different tasks. Many talked about using both hands like before, where the dominant hand was dominant. Some said they did not even think about the wrist anymore but used it in an unconscious manner just like the uninjured one. This included using it for making gestures, which gave a feeling of normality and ease.

The wrist functions very well, I kind of ... don't think about it ... (5:13)

The participants had regained the ability to perform, or the ease of performing, different everyday activities relating to personal care, which meant a lot to them. For example, they used both hands when washing their face and were able to reach to wash both armpits. Getting dressed was no longer a problem and they were even able to do up small buttons. The ability to cut one's nails had also been recovered, as well as the ability to use curlers and a hair dryer. The recovered ability to wipe oneself after toilet visits was also appreciated.

Wiping oneself after toilet visits, reaching, it was so annoying when it didn't work! (6:78–81)

Household work was recognised as requiring strength and the ability to move the wrist, but the participants found that most things, like vacuum cleaning, wiping floors or cleaning the porcelain in the bathroom, went well again. Kitchen work, like baking bread, cutting vegetables, pouring sauces from frying pans and putting the china back in the cupboards from the dish-washer, also went more smoothly than before surgery.

I can do the vacuum cleaning, the ordinary things you do in your home ... I can clean the windows. (2:7–8)

Moreover, physically demanding tasks like opening stiff locks and moving heavy pieces of furniture caused no problems for most participants. Further, work-related activities, like carpentry and painting, were manageable, as were activities performed in leisure time, like digging in the garden or mowing the lawn or pruning bushes. Gardening and sailing and the performance of various sports were other examples of activities that had been resumed by participants.

Transportation had been recovered. The participants were able to support themselves and hold the banister as they climbed the stairs, even when carrying something. This meant they were also able to travel by public transportation. They were also able to ride a bike and drive a car again, which they found both practical and satisfying.

... opening and closing the tailgate of a hatchback ... you turn your hand and push and lift ... before it was not possible, I stood there with the skewed wrist, you know, with the keys and grocery bags and, when the ground was wet, you couldn't put the bags down ... I had forgotten that, but I was frustrated many times and now there is no problem whatsoever. (6:108–115)

In spite of the improved ability to perform activities, some participants still struggled to some extent with certain tasks and activities following restricted functionality of the wrist. Wiping the kitchen table, opening heavy doors and taking out a hot baking sheet from the oven were given as examples. Using the hand in heavy activities, such as renovation work, was also difficult for some participants. Different strategies, like using a different grip than normal, or careful planning, were therefore used to resolve these issues.

Normalised social relationships

The participants felt that their social relationships had normalised during the year after surgery, as they had increased their independence in various activities. Independence from other people was appreciated and mentioned with relief and gratitude. For example, the participants were able to get up from the floor and pour hot water from saucepans and open bottles and jars, without asking for help. One participant appreciated not needing help like a child to cut a pizza into slices in the restaurant.

Before, when I was at my worst, then I would go to a restaurant and I had to get someone to cut the pizza for me ... I could sit there trying ... it felt so degrading because it got messy ...

It was very hard, it felt wrong, that I would need someone to cut the food for me, as if I was a child ... Cutting my food is not a problem anymore. (14:229–234)

The participants reported less irritation between spouses related to the increased ability to do their share again. One used the example of managing to go to the grocery store independently, not needing the reluctant spouse for assistance. Moreover, the wrist and hand also functioned better in intimacy, when caressing a partner, for example, but it was sometimes still troublesome if the partner lay on the injured arm.

Social life roles, such as looking after grandchildren regularly, were resumed due to the increased ability to use their hand. Further, the participants found that the energy and will to socialise had returned. The participants also said they could socialise more like normal again because of small things, like being able to shake hands with people, mingle with a glass of wine in their hand, or have a cup of coffee in a café, without fear of spilling.

Increased wellbeing

The participants said they felt better and were grateful because they had been given the opportunity to undergo surgery. Some participants said that the surgery had been necessary. They shared new insights about what their hands mean for the ability to work, as well as for the ability to do things just for the pleasure of it and how this in turn affects wellbeing. In particular, participants who suffered from back pain or had a hip prosthesis, for example, found that the functionality of their wrist was of great importance, because they had to rely so much on their hands. For many, the difference compared with before surgery was large. Even if some were worried before surgery, they did not regret the decision and said that it had been worth the effort.

If I had to make the decision again and had known the outcome, I would have chosen surgery again, it has made my life much easier. (3:161–163)

The participants reflected over the difference and what it meant for their wellbeing. They were pleased that they were able to manage ordinary things again, like peeling a carrot or handling a credit card. Moreover, the ability to do things, like making the

bed 'my way' again, was a source of satisfaction. Their wellbeing had also increased as they were confident that their wrist had healed and that nothing would break. In crowded places, or when playing with children or grandchildren, they no longer protected their hand. Even experiencing some pain, during activity or after using the hand, was no longer frightening.

Sometimes I do some heavy work and it hurts... of course, it hurts in some positions... but I'm not afraid that it will break, I know it won't. (14:37–40)

The participants reported feelings of pride and self-esteem because of being physically strong again and being a person who could help others. They felt better because fear of falling when being physically active was no longer a source of distress. For example, they walked the dog and climbed ladders to change light bulbs without fear. Moreover, the participants moved around without fearing to use their hand for support, when walking in the mountains or going into the sea for a swim, for example.

The feeling of uncertainty has more or less disappeared, I must say, even when I'm going into the water, I'm able to... I would use both hands like this... (7:100–103)

Others mentioned with satisfaction that they were going cross-country skiing, as well as skiing downhill or skating, without fear. In winter, some participants were, however, still cautious because they were afraid of sustaining a new fracture.

Once again regarding oneself as an active person, who can manage being busy and does not have to rest for the whole evening after the working day, was satisfying. The participants reported being in a better mood, more like they used to be, and said that they were also able to concentrate again, because the pain had gone. Moreover, they were pleased to hear from relatives that the change was noticeable to them as well. The participants reflected on how their wellbeing and quality of life as a whole had improved because of less pain and because they were able to do things that meant a lot to them. This gave a feeling of having come back to oneself. They described the satisfaction they got from cooking, being in the stable taking care of the horses or sitting on the dock, leaning on their hands, for example.

I don't know how others experience this, but I... I'm very happy because my quality of life has improved so much, I really am. (3:165–166)

One year after surgery, the participants still noted progress and expressed confidence that this would continue. They made plans to start biking again and training like before. Even if their wrist might never be fully restored, they would be content with the gains they had made and said that they were satisfied because everything that could be done had been done.

I see the opportunity to cycle longer distances again, I couldn't do that before. I remember I tried, but I could not go further than around the block... (14:519)

Discussion

The results of this study indicate that the participants experienced the relief of symptoms and had regained the ability to perform many everyday activities. A couple of the participants were waiting for additional surgery, while some felt the wrist was fully restored. The participants experienced an increase in wellbeing, as they had regained the ability to perform valued activities and were less afraid something would happen to their wrist.

In some ways, the participants' experiences represent a continuum of recovery, from experiencing some residual pain and

stiffness to considering oneself as being fully restored. Corrective osteotomies are technically challenging and complications such as tendon ruptures, neuropathy, hardware failure and loss of alignment do occur. Additional surgery following corrective osteotomy after malunion of the distal radius is therefore sometimes warranted [25–27]. In this study, a few participants had undergone secondary surgery during the year after the corrective surgery due to complications and they had experienced some inconvenience following this. At the time of the interviews, a couple of participants were still waiting for additional surgery. The experiences of the participants who had had complications, or needed additional surgery were, not surprisingly, influenced by the remaining symptoms. After complicated surgery, this is part of the picture, which is reflected in the results of this study. The experiences of complications might have been described differently by other respondents and the result should be read with this in mind.

Studies indicate that some residual limitations in activity performance may be expected after osteotomy of the distal radius. Mean scores of approximately 25 points on the Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire [28,29], which indicate moderate disability [30], have been reported. The mean normative DASH scores have been found in general populations to be between 10–13 points [31,32]. However, the research is inconclusive, as other studies have shown large improvements radiographically and functionally with PROM scores comparable to normative values [27,33].

Many different factors influence and contribute to patient satisfaction after surgery on the hand or wrist, such as an improvement in physical symptoms, an improvement in the performance in activities of daily life, improved aesthetics and how well the individual is able to incorporate the injured limb with the self again [34]. All these factors were also found to contribute to satisfaction in this study. An improvement in physical symptoms was mentioned by all the participants. They described a reduction in pain and improved range of motion, 'relief of symptoms'. Regaining the ability to perform activities was also mentioned and reflected on by all the participants. Some participants clearly expressed satisfaction, as they said that the improved ability to perform certain activities had enhanced their quality of life. The improved aesthetics of the wrist were a source of satisfaction that was also mentioned by the participants in this study. One example of successful 'incorporation of the injured limb to the self' is that some participants reflected on not thinking about the wrist anymore but using it unconsciously, like before. This is noteworthy, as malunion of the distal radius potentially interferes to a large extent with everyday life, sometimes making the individual aware of the wrist at all times [10].

After a complicated injury, such as malunion of the distal radius, and after complicated surgery, such as corrective osteotomy, it must be regarded as a very good result if patients regain abilities and experience increased wellbeing and find that their daily life functions again.

Methodological considerations

The interviews began with the question 'Would you please tell me how your wrist functions in your daily life now, one year after surgery?'. The respondents were encouraged to speak freely from the heart. When activities of daily life went smoothly and without trouble, the participants sometimes found it difficult to know what to talk about during the interviews. In these cases, it was an advantage that the interviewer had a pre-understanding of the inconvenience that a malunited distal radius fracture may cause.

The pre-understanding was used, since it made it possible to ask further questions and encourage the participants to think about how it was before surgery to obtain this perspective as a contrast. Another interviewer would perhaps have asked other questions which would have influenced the result. The interplay between the interviewer and the interviewee constitutes the context for the interviews.

The length and quality of the interviews varied but, as 20 interviews were conducted, the data were rich and covered a variety of experiences related to the aim of the study.

The majority of the respondents in this study had injured their non-dominant hand, which may have influenced their experiences. One might presume that an injury to the wrist of the dominant side would affect the ability to perform activities more than an injury to the non-dominant side. In spite of this, many activities are performed with two hands, and pain is experienced equally in both wrists. The interviews revealed that some participants were still bothered by their wrist at times. This might not have emerged if only functional status like range of motion and grip strength had been evaluated. It might not have been observed even if PROMs had been used. The questionnaires do not always take account of whether the dominant hand or the non-dominant hand is injured. The patient may, for example, answer the questionnaire based on the capacity of the dominant hand even if it is the non-dominant hand that is injured. Further, individuals may experience difficulties of different kinds and in other activities than those asked about in a questionnaire. When speaking from the heart about experiences of daily life, the descriptions are also coloured by attitudes and feelings, due to the importance different tasks and activities have to the individual. This may reveal the impact the difficulties, as well as improvements in the ability to perform activities, have on the individual in other aspects of daily life.

In qualitative research, certain steps are taken to ensure trustworthiness. The different steps in content analysis, described by Graneheim and Lundman [23,24], were followed during the analysis. Different interpretations of texts, such as transcribed interviews, do exist. During the analysis three different authors took part to enhance dependability. No data were left out and the appropriateness of categories and sub-categories was discussed in relation to the context.

Quotations were given to make the interpretation clear [23,24]. To establish credibility a purposive sampling, with the aim of creating the greatest possible variation in terms of age, gender and occupational status, is often conducted [22]. In this study, a consecutive sampling method was used and following this, more women than men participated and the majority of the participants were 50 years old or more. However, this reflects the epidemiological distribution of distal radius fractures and, both young and middle-aged, as well as elderly, and both men and women, were represented. All the participants had undergone surgery at the same clinic, which may also influence the result. The clinic has a large catchment area and participants with different sociocultural backgrounds, with respect to living in a city or in a rural area, were represented. They also represented different occupational backgrounds.

'Saturation of data' was not taken into consideration with respect to sample size, but the decision was instead guided by the concept of information power, as described earlier [21]. One interview was not analysed due to the major and unexpected complication of implant failure, because the fracture had lost the reduction and the fracture had healed in the same mal-position as prior to the osteotomy. This was considered as not belonging

to the picture after a corrective osteotomy, as the other complications that respondents spoke of do. Experiences relating to complications were not described in detail by the participants. More focus on this during the interviews might have revealed more information relating to emotions and expectations with respect to this important topic.

In terms of creating conformability, the technique of constantly confirming and asking the participant to clarify information was used during the interviews. With respect to transferability, the experiences may be transferable to experiences of everyday life one year after initial surgical treatment, following a distal radius fracture.

Conclusion

One year after a corrective osteotomy following malunion of a distal radius fracture, the patients' experiences represent a continuum. Some are still restricted by their wrist occasionally, the majority experience an increased ease in their performance of activities of daily life and some regard themselves as fully restored. The recovery has a positive impact on social relationships and the patients' wellbeing.

Disclosure statement

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ORCID

Ingrid Andreasson  <http://orcid.org/0000-0003-3991-470X>

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