What motivates children and their parents to participate in pediatric clinical research? An interview study

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Burden weighs more than risk: Why children and their parents decide to participate in clinical research? Results from a qualitative interview study *[submitted]*

ABSTRACT

Knowing why parents and children want to participate in pediatric clinical research, teaches us what they attach importance to, what information they base their decision on and which information they need to receive in the recruitment and informed consent process to be able to make a proper decision. In this qualitative semi-structured interview study, we explored minors' and their parents' motivations, views and expectations during the process of recruitment and informed consent for pediatric clinical research.

We interviewed children and their parents who had been asked to participate in clinical research and had had an informed consent conversation (N=34). Interviews were analyzed using thematic analysis.

Children and their parents attach more importance to burden than to risk when they need to decide about participation in clinical research. The anticipated burden of participating is most frequently mentioned as motivating or discouraging for their decision to participate. However they have a very broad notion of burden, with an emphasis on logistical burden. They outsource their concerns about risk by trusting the research staff and their physicians. Their altruistic motivations are mostly reciprocity-based.

The design of pediatric clinical research and especially the recruitment and informed consent process can be ameliorated by the findings of our research regarding the motivating and discouraging factors. This way, research will be better in line with the preference of children and parents, and children and their parents will be better equipped to make a decision about participation.

INTRODUCTION

On the one hand, we need children to participate in clinical research to advance scientific knowledge and develop new - much needed - treatment options for children. On the other hand we want to protect children against the harms from research, because they are a vulnerable and dependent population.[1]

For decades scientists, ethicists, philosophers, physicians, members of research ethics committees and other healthcare professionals write about and discuss this precarious balance between protection and advancement of knowledge.[2-5] But how do children and their parents, as key decision-makers in pediatric clinical research, experience this balance themselves? Is it a trade-off for them? Do they also weigh the harms against the benefits when they need to decide about participation in clinical research? Or are other factors just as important to them in their decision?

Why would you expose your child to the burden and risk of clinical research without the least expectation of a direct health benefit? Why would you as a child want to go to the hospital solely for research procedures, it being a place where you might already have negative experiences? Why would you undergo a bunch of procedures without knowing it will be of any help to you? Thinking about these questions makes us wonder why someone would let his/her child participate at all. Still, we do know research with children is needed, so we do offer it to them and they do participate. There are probably other factors at hand in their decisions to participate than just striking a balance between protection against harm and advancing knowledge. For example Hoberman and colleagues and Vanhelst and colleagues showed that the child's health status also is an important factor in research decision-making by parents.[6 7] The study by Hoberman also showed that parents with positive perceptions of the research team are more inclined to participate.[7] And other studies showed that for many parents not participating didn't even present itself as an option.[8]

Results from a systematic review on motivations of parents and children to consent or dissent to clinical research showed that most research on this topic is done in the oncology setting, and that other fields of clinical research are underrepresented.[9] This review also revealed that the majority of the empirical research done in this field is of a quantitative nature, while qualitative research can generate much more important and essential information to further this debate.[10] Qualitative empirical research gives better insights into research subjects' motives and attitudes, an indispensable element of normative work in medical ethics.[11] Knowing why parents and children want to participate in pediatric clinical research, teaches us what they attach importance to, what information they base their decision on and which information they need to receive in the recruit-

ment and informed consent process for pediatric research to be able to make a proper decision. It helps us with the ethically sound inclusion of children in research and can improve both the instrumental and moral value of informed consent/assent in pediatric research. It gives us the chance to: a) communicate more decision-oriented information during the recruitment and informed consent process, creating more *informed* consents/assents; and b) adapt the research design, recruitment and informed consent process to their needs and wishes, creating probably *more* informed consents/assents.

Therefore, the main objective of this qualitative interview study was to explore minors' and their parents' motivations, views and expectations during the process of recruitment and informed consent for pediatric clinical research. Secondary objectives were: 1) To assess motivating and discouraging factors that shape the decision to consent or dissent to participation in pediatric clinical research; 2) To assess their views on the recruitment and informed consent process; 3) To assess their attitude in the decision-making process; 4) To assess their expectations of participation in pediatric clinical research.

METHODS

This study is reported in accordance with the consolidated criteria for reporting qualitative research (COREQ).[12]

STUDY SETTING AND POPULATION

The study population consisted of children and their parents who had been asked to participate in clinical research and had had an informed consent conversation with a health-care professional. Between March 2014 and July 2016 participants were recruited from three departments of Erasmus MC – Sophia Children's Hospital: the department of Pediatric Intensive Care, Pediatric Oncology, Pediatric Pulmonology (division: Cystic Fibrosis).

Due to the qualitative nature of the study no sample size calculation was performed. Enrolment of participants ended when theoretical saturation was reached for answering the main research question and no new concepts emerged.[13]

To do justice to the variety of clinical research and to ensure a wide range of perspectives, purposive sampling was used for the selection of the study population.[14] Sampling consisted of children of diverse ages and mothers and fathers, who had been asked to participate in clinical drug trials (including phase I, II, III and IV; and pharmacokinetic/pharmacodynamic studies), intervention studies other than drugs (including medical devices) and observational studies.

Drawing comparisons between participants, diseases, and research types was not a central study aim nor is it possible with this type of qualitative data.[15 16]

INTERVIEWS

KT conducted semi-structured interviews with all parents and children face-to-face in the hospital, at home or by telephone, according to the family's preference. Six themes were addressed in the interviews: Why did you decide (not) to participate?; motivating and discouraging factors for this decision; views about the recruitment and informed consent process (including provision and content of the information); attitudes in the decision-making process; and expectations of participation.

CODING AND ANALYSIS

The interviews were audio taped and transcribed verbatim. Interviews were analyzed using thematic analysis. Through systematic objective coding, we identified and labelled themes, in order to elucidate relevant concepts and thus to interpret motivations, views and expectations of children and parents during the process of recruitment and informed consent in pediatric clinical research. We coded and analyzed the data using QSR International's NVivo 11 qualitative data analysis Software.

KT initially coded all interviews. SvdV coded all interviews as a second researcher. Disagreements were settled by consensus. Initial coding tree was based on the interview guide and included: 1) Main reason for participating in specific clinical research study; 2) Motivating factors; 3) Discouraging factors; 4) Views about recruitment and informed consent process (including information material); 5) Attitudes in the decision-making process; 6) Expectations for participation in the research. Initial coding for motivating and discouraging factors was based on results from a previously executed systematic review on motivations for parents and children to participate in clinical research.[9] During the process of coding and analysis this initial tree was adapted and elaborated based on the data from the interviews. Interview coding and analysis continued until no new codes, concepts, or patterns emerged.

RESULTS

STUDY POPULATION

Between March 2014 and July 2016 34 participants of 21 families participated in this interview study. We interviewed 4 children about their own decision and 30 parents (11 fathers, 18 mothers, one adult sister) about the proxy decision for participation of their child. Participants were equally distributed amongst the three departments and

educational level of the parents was diverse. Some families had consented and some had declined to participate in the proposed pediatric clinical study. Table 1 presents an overview of the participant characteristics.

Table 1: Participant characteristics

	Characteristic	No. of participants
Family role	Father	11
	Mother	18
	Sister*	1
	Child	4
Disease of child	Cancer **	11
	Cystic Fibrosis	10
	Craniosynostosis	6
	Esophageal reflux	3
	Rare genetic condition	2
	Necrotizing enterocolitis	2
Education level parents	Secondary school	2
	Intermediate vocational education	11
	Higher vocational education	7
	University	6
	Unknown	4
Age parents	Median age [range]	34 [18-70] years of age
Age of their children	Median age [range]	3 [0-17] years of age
Age interviewed children*	Median age [range]	15 [11-17] years of age

* 1 adult sister joined the interview, she is regarded a parent in the analyses; ** including acute lymphocytic leukemia (ALL), acute myeloid leukemia (AML), lymphoma; *** not all children were interviewed, because they were too young or did not want to be interviewed

MAIN MOTIVATOR TO CONSENT OR DISSENT

All parents and children were asked why they decided to consent or dissent to the proposed clinical study.

One mother decided not to let her child participate in the proposed clinical research study. And another mother agreed with her child (boy, 17 year of age) not to consent to participation in the proposed clinical research study. Both children did participate in research in the past. Their main reason for not participating in the proposed study was concern with the expected burden of the study (table 2).

Table 2: Example burden as reason for dissent

Participant	Quote
Child 201 *(age 17)*	*If it doesn't work, it doesn't work, that's what they said…I am not a pill swallower. I've tried, but it really did not work. Twice it was successful and then they said: "You have to wait another day." And then I thought: "I'm not going to take pills for another day" ... Then I said: "No." Then it stopped.*

Children and parents who had consented to participation in the proposed clinical study, were asked what their main reason for participation was. Table 3 gives an overview of these main reasons for consent. The expected minimal or no burden of participation for the child was the most frequently mentioned main motivator. Altruistic motivations (not defined, helping science or helping other/future patients) and a personal benefit for the child were also mentioned frequently. Other main reasons included among others: a general trust in research and researchers and trust in the safety of research. Some participants mentioned a combination of two or more reasons for participation.

Table 3: Why did you decide to participate? Examples of main reasons for participating

Main reason for participating*	Quote
Minimal or no burden for child	*... understood from everything that she is not bothered by it herself and I think that is the most important thing. If she were bothered by it, I would not have done it.* (mother 122)
Altruism **- Helping future or other patients** **- Helping science**	*Yes, that was to see what helps best for later, for the future. And that's why I participated, it can help people later. For me it does not really matter that much, they said, but I think yes if I can help people, try. ... Yes, when I was one years old, I also had cancer, I also helped a lot of people. That's what I'm gonna try again now.* (child 201, age 17)
Health benefit for child	*We think it is important that a solution is sought of course for his illness. That medication comes that improves his quality of life and of course stretches his life.* (father 053)
No risks associated with participating	*Yes the same applies to me. If it is risk-free for him, I think it's okay.* (father 243)
General trust in research **- Trust in researchers** **- Safe otherwise wouldn't be offered**	*I have all the confidence in this study. I had ... I think it's one and a half, two years ago, that [physician x] started talking about it. And I also viewed his explanation on YouTube a couple of times and I just really had all confidence. And I asked him, because at that moment we could not start because the study did not start yet, I said what would you do? And then he said to start immediately, he said. And I just had every confidence in it.* (mother 042)
Possibility to stop participation	*But then it turned out, yes I do not know about studies and stuff, I thought yes when you join then you are obliged [to continue (red)], but then it turned out that you could stop at any moment, if you did not like it anymore. So that is actually the reason that I thought I'll do it.* (mother 062)
Curiosity	*Curiosity, well what will come from it. Yes how it develops further.* (father 123)
Combination of reasons	*Because I think it is important that research can be done so that other people in the future can benefit from it. And also, they said at least, if in adults, the drug also tackles a broader spectrum of fungi t, so this medication also seems better to me.... Yes that that medication works better than the standard medication.* (child 131, age 16)

* Answer to the open question: "Why did you decide to participate in this clinical study?" or "Why did you let your child participate in this clinical study?"

MOTIVATING AND DISCOURAGING FACTORS

When asked to elucidate their decision, interviewees revealed that most of the times their decision was a result of weighing several motivating and discouraging factors (table 4). An illustrative overview of these motivating and discouraging factors is shown in figure 1.

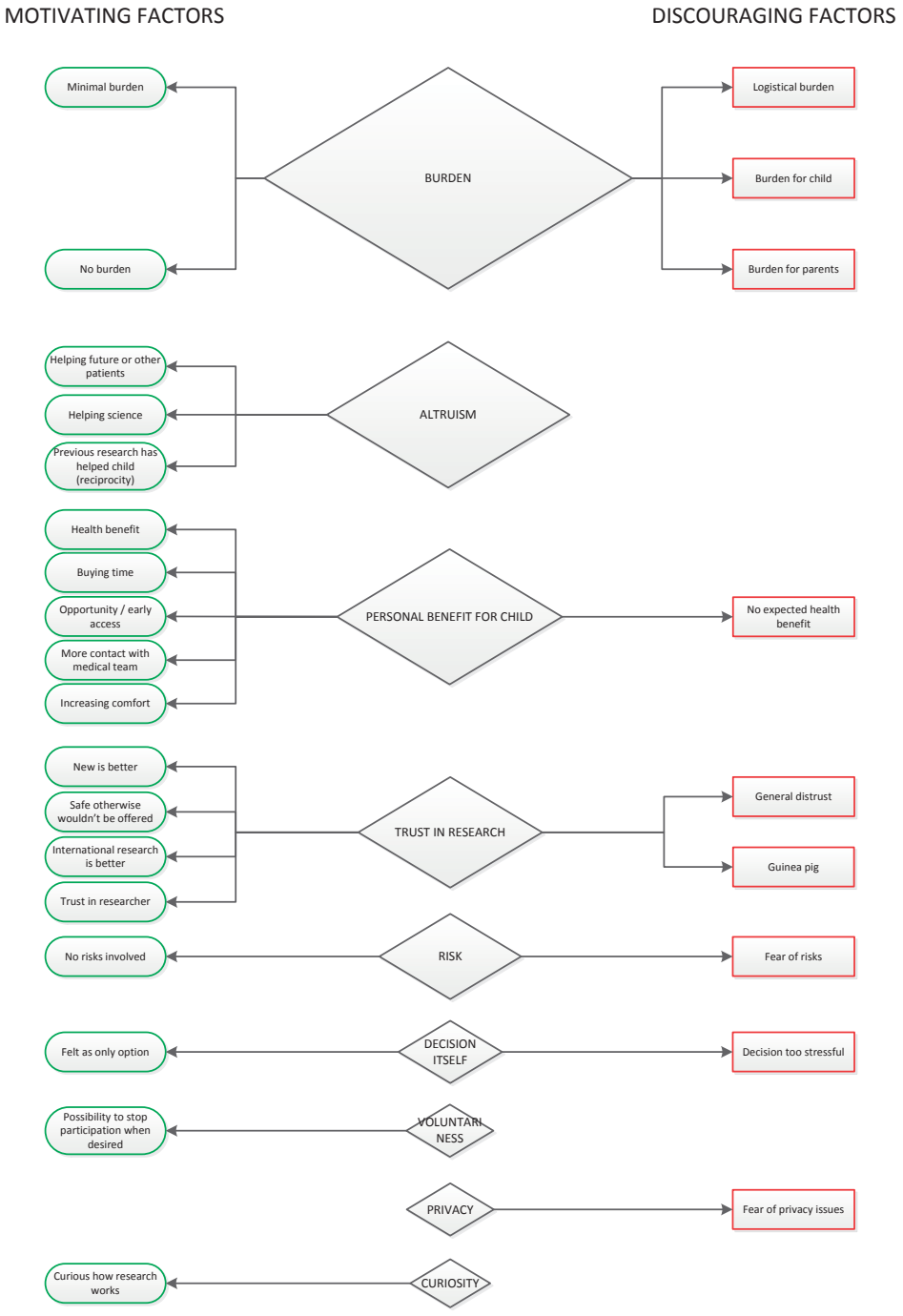

Figure 1: Overview of motivating and discouraging factors
Diamond shapes show the factors influencing participation (reason); size of the diamond shape illustrates importance of mentioned factors. Red squared boxes indicate discouraging factors; Green rounded boxes indicate motivating factors.

Burden was mentioned by almost all participants as having an influence on their decision (table 4). This included minimal and no burden as a motivating factor and too much expected burden as discouraging factor. Fear of expected burden was not only limited to the burden of study procedures on the child, but included also the way in which their child's participation would burden the parents (e.g. filling in questionnaires) and the logistical burden of being in clinical research (e.g. travel arrangements).

Table 4: Examples of motivating and discouraging factors

Participant	Quote
Weighing of factors	
Mother 222	*Yes, we have already participated in several studies. And I often have something like, if it doesn't burden them and cannot do any damage, then I think: "Yes, you do not do this research for nothing, so it probably has positive effects for children who come after them or at least there is information that others can use." And yes, then I do not mind.*
Burden	
Mother 112	*Yes of course it must be interesting, how often do we need to go to the hospital and that is to be planned with my husband's job and that's pretty much it. We do not live nearby… I mean to the hospital once more that does not matter. But if you are continuously…then it is not interesting for us: No.*
Child 151 *(age 15)*	*I first thought about it, because they said what you would need to do and that you had to go to the hospital more often. I thought: "I really don't want that, I do not want to go to the hospital more often and I do not want to do more than what I already do, with school and stuff." So at first I said: "No, I do not want it."*
Personal benefit	
Father 053	*It was a promising study, what the doctors thought very promising. So we thought something like: "When we participate in that study, there is a follow-up study, then he actually is ahead, before the medication comes on the market."*
Child 151 *(age 15)*	*And yeah, if I can continue with it and it helps better than nebulizing, that would be easier of course. Because then I can go on with it in one go, it's less work, I like that better. Yeah, it is not every single time a device, charging the device, and all that kind of things.*
Altruism	
Mother 242	*For me it is a basic value, why I am also a blood donor and organ donor, things that I find important. If you can help someone with that, I actually think you should do that if it is possible.*
Mother 072	*Yes, I think that is the ultimate goal, of course, to help your own child and other children. That is, what I think is the overarching ... not so much that it is not burdensome, but of course you do it for science and for the future.*
Mother 132	*I think the biggest reason is, yes you see from all sides that this study is necessary, that there is so much possible and it is of course beautiful that there is so much. Yes a lot of study is needed for that. And yes, you yourself think if you can help a hand somewhere; if you see how much they do here for your child, what is mega important; and if you can help a little something with it. Then you do that. Then you want to do that.*
Child 131 *(age 16)*	*Because I think it is important that research can be done, so that other people in the future can benefit ... Yes ... without ... If no research could take place, in that way they would never evolve in healthcare. So then, like in the old days, it would have been, at least not that long ago ... now it's a lot nicer to be here.*
Trust and distrust	
Mother 242	*No actually not. Out of curiosity I would inquire about the usefulness, the necessity. But I assume that what they come up with and where budget is made available for, that that is necessary. So it does not matter to me.*
Father 173	*But if she would act as a guinea pig, yes, I would have my doubts about it.*

Expected personal benefit for the child encompassed not only direct personal health benefit (e.g. possible cure), but also an increase of comfort (e.g. less medication), buying time, the opportunity to get early access to new drugs, and more contact with the medical team (table 4).

Altruism was frequently mentioned as a reason for participation (table 4). Parents let their child participate, not only to help patients in the future or to further science, but also because they acknowledged that in the past children had participated in research of which their child might have benefitted now. Children themselves also mentioned altruistic reasons.

Parents and children also mentioned a general trust in research or the contrary, distrust in research, as a reason influencing their decision (table 4). Distrust included mentioning of words like "guinea pig' or experimenting. Trust in research showed in terms like: I trust my doctor, it is safe otherwise it wouldn't be offered and since it is an international and multicenter study, new medication is better.

Other reasons parents and children mentioned were related to the risks of participating, the decision itself, the voluntary nature of participating, and privacy issues.

VIEWS ON RECRUITMENT AND INFORMED CONSENT CONVERSATION

Parents and children made explicit that they want to be asked for participation in clinical research, even in stressful situations with little time to decide (e.g. at the intensive care unit). They gave suggestions on how to approach them in those situations and advised to inform all personnel, research and healthcare personnel, about the study and include them in the organization (table 5).

ATTITUDE IN THE DECISION-MAKING PROCESS

Parents discuss the clinical study with each other when possible and this deliberation is considered relevant and important to them. They hardly mentioned discussing the study with other people except their child, partner or healthcare / research professionals.

Parents do discuss the study with their child and feel the child's opinion is very important. Most of them mentioned incorporating their child's opinion in their decision or following the child's wish, also when the child is not legally competent to consent. The older the child, the more importance they attach to their child's opinion (table 5).

Table 5: Examples views on recruitment and informed consent conversation, attitude in the decision-making process, and expectations

Participant	Quote
Views on recruitment and informed consent conversation	
Mother 182	*Just in two sentences: "I do research and this is what I need from [name child], but I understand the situation, that it is too much. But I want to ask if you want to think about it and then I leave some more information behind and then I'll be back tomorrow." But do not talk for minutes about your little research. No, because that really doesn't interest you, when you are in the ICU. No, of course not, why would you care, it's about your child getting better, not what kind of research is being done here... Yes, I mean they are walking around here at the ICU, so you can come, but just ask the nurse of [name child]: "How is [name child] doing? Is it okay? And do you think I can approach the parents for research?"*
Father 042	*I think it works well, I think they are very professional. Our contact moments are very good. If we have questions we can ask them, we get good and comprehensive answers.*
Attitude in the decision-making process	
Mother 182	*Yes, we do ask each other whether we are doing this or not? I'm not going to decide by myself.*
Mother 062	*I remember that I had [research nurse a or b] on the phone, at least one of those two. And I said: "Oh well I do not know." Then she said: Well, then I just say that you will not participate." Then I thought: "Oh yeah, that's a possibility too." Then I was hesitating again, so that's how it went.*
Mother 022	*And that is actually the age of [child, age 4] now. Then we would like to talk about it with [child]. About, yes they have to draw blood for research, do you want that? Yes, for us his opinion means a lot, especially because he has a chronic illness.*
Child 171 *(age 11)*	*Yeah, I thought: "They are older and more knowledgeable about things. So, yeah, you just do it and I'll go along."*
Child 151 *(age 15)*	*Yeah, yeah. Then, of course, your parents will push you a little bit: "Join in ... ".Yeah, but that's part of it, I guess. If I said no, they would have been fine with it too. Yeah, in the end I have to do it myself, so they can say: "Yes, do it." But if I do not feel like it, I will definitely not do it every time.*
Expectations	
Mother 174	*I do not think so. We have signed a contract. Yes, he cannot stop, we will not stop. Yes, then I think it's over.*
Father 152	*But there isn't actually. There is no risk; at least it has all been tested in advance. So it has already been tested on adults. Well if you are not hypersensitive to that drug, then why would you not do that? I see no reason for that.*

EXPECTATIONS

Almost all parents and children were interviewed before their participation in the clinical research study had started or just at the beginning of the clinical research study. When deciding about participation they had certain expectations about their participation in the research, which were made explicit by them in the interview. Some of these expectations were surprising. Most parents and children consented on the assumption that participation in the clinical research study would not burden but benefit them in one-way or another. One parent expected her child to benefit from participation in an observational study. Several parents expected their child to be checked up more regularly in the study by the medical team. One family assumed being randomized to the standard treatment, meant not participating in the research at all. A frequently en-

countered assumption was related to the expected safety of pediatric clinical research. Multiple parents assumed research participation to be without any risks, because the drug was already used safe and effective in adults. One family had assumptions about the (in)voluntary nature of the study; they talked about signing a contract and were not aware of the right to withdraw from research (table 5).

DISCUSSION

BURDEN WEIGHS MORE THAN RISK IN THE DECISION

Our interview study shows that children and their parents attach more importance to burden than to risk when they need to decide about participation in pediatric clinical research. The anticipated burden of participating is most frequently mentioned as motivating or discouraging for their decision to participate (or let their child participate). This focus on burden is not only related to the burden of specific research procedures for the child, but entails also the logistical burden of participating in research for both child and parents. This includes time spent in the hospital for research purposes, missing school or workdays due to participation and missing out on leisure time. When a child is a research participant, it is easy to forget parents are not only proxy *consenters* but proxy *participants* as well: a child often depends on his/her parents to travel to the hospital, parents need to fill in questionnaires or help with diaries and parents need to collect samples for research purposes. These are efforts they are willing to make for care, but not always for research.

In designing and reviewing pediatric clinical research, and in the recruitment and informed consent process, this type of logistical burden for both child and parents should be given attention. Furthermore, since it is a main factor influencing their decision, minimizing this burden is crucial. A systematic review about discontinued clinical trials showed that burden for participants is one of the major reasons for recruitment failure.[17] Therefore paying more attention to these types of burden during the design of the study will also contribute to the success of clinical research.

TRUST IN RESEARCH

Although parents and children do not frequently mention risks as a factor influencing their decision, their focus on burden does not mean risk does not matter to them. On the basis of these interviews we conclude parents and children outsource their concerns about risk. They have a great deal of trust in research, research staff and physicians and do not expect high risk research or bad quality research to be offered to them.

This shows how important ethics governance systems and the prior-review role of research ethics committees are. Despite the ongoing criticism on the ethical review system, including accounts of overprotection,[18 19] our study shows potential participants expect research to be checked and reviewed beforehand and only safe and sound research to be offered to them, making ethical review an essential step in the process.

RECIPROCITY IS KEY IN ALTRUISTIC REASONING

Parents we interviewed quite often referred to helping other or future children and science as important considerations in their decision. There is much debate in literature whether you can call this altruistic reasoning, given that parents are not research participants themselves.[20] But taking in consideration our findings on burden, you can argue that parents also partly self-sacrifice when their child participates, an essential element of altruism. Therefore we characterize these considerations of children and parents as altruistic reasoning.

Striking was that parents and children not only point to the future in their altruistic reasoning, but also reason backwards. Parents and children do not only focus on future patients, but also consider children who participated in the past. They now benefit, because in the past children participated in research. Luchtenberg and colleagues also recognized this backward reasoning in their interviews with children about research participation and introduced the term 'reciprocity' to characterize this type of altruism.[21] The results from our interviews accentuate this reciprocity-based altruistic reasoning in parents and children who are asked for clinical research.

PARENTS AND CHILDREN WANT TO BE ASKED, GATEKEEPING NOT DESIRABLE

Our interviews show that parents and children want to be asked for clinical research, even in difficult and stressful situations. However research professionals do not always approach all eligible patients for participation in a research study for various reasons (e.g. protection from burden, prejudiced anticipation on their dissent), a practice called 'gatekeeping'. An undesirable practice, as several other authors remarked in previous articles.[22-24] Results from this interview study endorse this disapproval of individual gatekeeping by professionals, with respect for persons as the most important argument: parents and children want to be asked for research participation, and then decide themselves.

SUGGESTIONS FOR IMPROVEMENT IN THE INFORMED CONSENT AND RECRUITMENT PROCESS

The interviewed children and parents showed a large deal of trust in their treating physician. Previous research also showed that this trust is central to the willingness to

participate in research.[25 26] But we need to be aware that this trust can become problematic and jeopardize the voluntariness of research participation.[26-28] Parents introduced a possible solution for this problem in our interviews and advised to let their treating physician introduce the study in just a couple of sentences and subsequently let the research nurse or researcher explain the study in more detail and do the informed consent procedure. This process would strike the right balance of trust in your own physician and being able to make an independent free decision.

Another issue parents addressed in the interviews, and we observed ourselves, was the fact that not all personnel with whom parents were in contact with in the hospital knew about a study, resulting in insufficient or even incorrect information. Therefore, it is essential that everyone at the work floor knows about the clinical trial.

A third issue addressed by parents was their desire to receive information about the aggregate results at the end of the clinical research study. This is not yet, very common in research practice. We therefore advice research professionals to develop a policy at the start of the study for return of results, e.g. keep an update on a website, and ask all participants during the informed consent process if they want to be updated.

MISCONCEPTIONS BRING A RESPONSIBILITY FOR THE RESEARCHER

We were confronted with multiple misconceptions when asked about their expectations of research participation. These included difficulties with understanding the research-care distinction, the research design, the voluntary nature of participation, and risks associated with pediatric clinical research. These misconceptions can lead to participation in clinical research based on false assumptions. Therefore prevention of these misconceptions brings a responsibility to research professionals to inform parents and children correctly, be alert for these misconceptions and stay in contact during the study period.

STUDY STRENGTHS AND LIMITATIONS

This qualitative interview study contributes to better acknowledgement of the importance of knowing the reasons why one might or might not want to participate in research.[29] The recently revised Common Rule states mere comprehension and understanding of given information is not sufficient, the given information needs to be relevant for the decision.[30] In order to design the informed consent process in a way that matches these needs of the participants, qualitative research into the motivations of people to participate in research is essential. Because we interviewed parents and children with cancer and other diseases, this study adds new perspectives and variety to the body of empirical research into the motivations for pediatric research participation.

Unfortunately, only a limited number of participants who dissented to research participation was interviewed. Probably, people who dissent to a specific clinical study also dissent to participation in this interview study. Our study would have benefitted from inclusion of more dissenting families, to do justice to the variety of decisions. This type of qualitative research does not give insights in the distribution of motivations; therefore quantification of motivations is not possible with this data.

CONCLUSION

Parents and children want to be approached for participation in clinical research, and burden is the most important factor in their decision. In general, the motivating and discouraging factors influencing the decision of children and their parents are in line with discussions in research ethics committees. Our interviews revealed parents and children however have a much broader notion of burden, for example they attach importance to logistical burden, and that this is crucial in their decision on participation.

The design of pediatric clinical studies and especially the recruitment and informed consent in pediatric research can be ameliorated by the findings of our research regarding the motivating and discouraging factors. This way studies will be better in line with the preference of children and parents, and parents and children will be better equipped to make a decision about participation.

ACKNOWLEDGMENTS

We thank all parents and children who were willing to talk to us, even in a very difficult time in their live. Without their contribution this chapter could not have been written.

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