Assessing Research Participants' Perceptions of their Clinical Research Experiences

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Abstract

Introduction: Participants' perceptions of their research experiences provide valuable measures of ethical treatment, yet no validated instruments exist to measure these experiences. We conducted focus groups of research participants and professionals as the initial step in developing a validated instrument.

Methods: Research participants enrolled in 12 focus groups, consisting of: (1) individuals with disorders undergoing interventions; (2) in natural history studies; or (3) healthy volunteers. Research professionals participated in six separate groups of: (1) institutional review board members, ethicists, and Research Subject Advocates; (2) research nurses/coordinators; or (3) investigators. Focus groups used standard methodologies.

Results: Eighty-five participants and 29 professionals enrolled at eight academic centers. Altruism and personal relevance of the research were commonly identified motivators; financial compensation was less commonly mentioned. Participants were satisfied with informed consent processes but disappointed if not provided test results, or study outcomes. Positive relationships with research teams were valued highly. Research professionals were concerned about risks, undue influence, and informed consent.

Conclusions: Participants join studies for varied, complex reasons, notably altruism and personal relevance. They value staff relationships, health gains, new knowledge, and compensation, and expect professionalism and good organization. On the basis of these insights, we propose specific actions to enhance participant recruitment, retention, and satisfaction. Clin Trans Sci 2011; Volume 4: 403–413

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Introduction

The conduct of high quality clinical research relies on enrolling and retaining subjects who are invested in, understand, and have confidence in clinical research processes. In addition, regulatory and ethical imperatives are designed to protect research participants' rights and safety. Current mechanisms to assess whether researchers are achieving these goals rely almost exclusively on review of process completion, (e.g., whether appropriate consent processes were documented, informed consent forms were signed, and regulatory guidelines were followed). We hypothesize that directly assessing participants' perceptions of whether accurate transfer of information, voluntariness, and safety were accomplished in the clinical research process can provide robust, actionable information about the quality of these processes. We further hypothesize that improved understanding of research participants' experiences with respect to autonomy, safety, and satisfaction can help researchers: (1) enhance human subjects protection, including informed consent; (2) enhance recruitment and retention; (3) improve the quality of clinical research processes; and (4) increase public trust in the research enterprise. Thus, a participant-oriented approach would place evaluation of clinical research at par with the current standard of robust evaluation of the clinical performance of hospitals.[1]

Several studies have evaluated participants' comprehension of the informed consent process,[2–6] and their motivation to participate in clinical research.[7–10] How participants perceive their clinical research experiences has the potential to inform the ethical, clinical, and scientific components of clinical research, and the Association for Accreditation of Human Research Protection Programs requires organizations to have established processes for assessing and responding to participant concerns for the purposes of performance improvement.[11] However, to our knowledge, no validated tools exist for the comprehensive assessment of human research participants' research experiences.

In contrast, the healthcare industry has used standard patient surveys for accountability and improvements to patient care for decades.[1] In the 1990s, the Picker Institute conducted focus groups and interviews with patients, family members, friends, and healthcare professionals to determine which aspects of medical care are most important to patients and families, captured in eight general themes or dimensions of patient-centered care (*Table 1*).[12–17] They used this information to develop survey questions to assess patients' perceptions of hospital care and then established the validity of the results across geographic, racial, and ethnic groups (Z. Griffin, NRC Picker, Inc., personal communication, June 9, 2011). The data generated from these hospital patient surveys has proved to be extremely valuable, leading various accrediting and regulatory bodies (e.g., *The Joint Commission* [JC] and the Center for Medicare and Medicaid Services [CMS]) to mandate that hospitals collect such data.[18, 19]

We sought to build on this experience and apply similar methodology in assessing the perceptions of research participants, with the goal of assessing and improving the quality of clinical research. Thus, in 1995, the NIH Clinical Center leadership and two of the authors (D.H. and L.L.) collaborated with the Picker Institute (later NRC Picker, Incorporated) to modify their general hospital survey to acquire information about clinical

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research participants' experiences. New questions were developed specifically addressing clinical research processes, including: (1) informed consent; (2) study access; (3) participant safety; and (4) the right to withdraw from a study. The pilot survey questions were drafted using expert opinion, rather than by obtaining data from participants. In 2002, the leadership of the Rockefeller University Hospital and General Clinical Research Center (GCRC) learned of the survey and proposed to collaborate with the Clinical Center to adapt the survey for use at Rockefeller University. A protocol describing the implementation of the initial survey, including the methods used to obtain informed consent and insure participant anonymity, was approved by the Rockefeller University Institutional Review Board (IRB) in 2004. Since inception of the pilot survey, data from 2,200 participants at NIH, and 450 participants at Rockefeller University Hospital have been collected and reviewed. Data from these initial surveys provided valuable information that helped focus local educational initiatives for investigators and research nurses concerning human subject protections.

Although these initial steps were valuable, we recognized that the surveys were limited because they had not been rigorously derived from focus group information that would insure their concordance with participant concerns and priorities. As a result, we conducted focus groups of research participants to understand important dimensions of the research experience from participants' perspectives and to obtain data that would help in formulating individual survey questions. In parallel, we conducted focus groups of research professionals to obtain their perspectives of what they believe participants consider important, and to learn of their greatest concerns regarding the protection of human subjects. We drew broadly from the expertise, creativity, and experiences of collaborators at multiple institutions in a transparent and participatory process. This report describes the key themes and implications that emerged from the focus groups, including those related to participant autonomy, recruitment, and education; informed consent; subjects' rights; and provision of research-related clinical care.

On the basis of these data, we identified a number of opportunities to improve participants' research experiences and offer potential interventions for consideration. In addition, we used the data to develop a survey instrument. The assessment of its validity constitutes the second phase of the project that is currently ongoing.

Methods

Protocol development

An Executive Committee consisting of representatives from The Rockefeller University, NIH Clinical Center, and NRC Picker, Inc. developed the project's specific aims and outcome targets. The Executive Committee refined the study design with the benefit of expert input from professionals in human subject research from multiple academic institutions. Letters of invitation describing the project were sent both to the Principal Investigators of the 12 Clinical and Translational Science Award sites (CTSAs) in existence at the time, and 5 GCRCs that expressed interest in participating. A Focus Group Subcommittee (representatives from eight CTSAs and five GCRCs) was created to: (1) develop two Moderator's Guides for conducting the focus groups; (2) refine protocol procedures; and (3) operationalize recruitment at the self-selected academic centers that became participating centers (five CTSAs and five GCRCs).

The project's specific aims were to: (1) conduct 12–16 focus groups with research subjects to determine the most important aspects of their research experiences; (2) conduct six focus groups of research professionals to understand what factors they think are most important to participants, and what factors the professionals believe are critical in the safe and ethical conduct of clinical research; and (3) collect detailed information on the operational issues and obstacles to the review and conduct of such a multiinstitutional protocol (to be reported separately).

The Advisory Committee and Focus Group Subcommittee developed inclusion and exclusion criteria, and policies and procedures for participation, including: (1) the requirement that research participants' experiences must have occurred within the prior 2 years; (2) the stratification of participants by protocol type; (3) the stratification of focus groups by protocol type (participants) and research role (professionals); (4) rules for sensitive protocols, such as those involving HIV or behavioral illnesses; (5) how best to make initial contact with participants; and (6) recruitment methodologies.

Because an initial informal survey of participating institutions indicated that only a small percentage of research participants were non-English speaking, the Focus Group Subcommittee decided that the focus groups should be conducted in English.

Participants were subdivided into three groups: (1) participants who were affected by the disorder under study and received a therapeutic intervention as part of the study (Affected/Interventional; AI); (2) those who were affected by disorders under study and enrolled in natural history studies (Affected/Natural History; AN); and (3) those who were healthy volunteers enrolled in any study type (Healthy Volunteer; HV). The membership of the focus groups was similarly subdivided. Research participants were given $50 gift cards as compensation before the start of the focus group.

Focus groups of research professionals were also subdivided into three categories to avoid potential self-censoring because of professional deference across perceived hierarchical levels. The three groups were: (1) IRB members or chairs, ethicists, and Research Subject Advocates; (2) research nurses and research coordinators; and (3) investigators. Research professionals were eligible to participate if they had active roles in the conduct or oversight of clinical research, including having served as principal investigator or coinvestigator, research coordinator, research nurse, IRB chair or member, research ethicist, or Research Subject Advocate. Research professionals were not compensated.

Recruitment

Recruitment selection was guided by research coordinators who identified participants whom they judged likely to contribute actively to focus groups. We recognize that this selection process may introduce bias, but we judged it very important that focus group participants be willing to speak openly about their experiences. The Executive Committee reviewed the coded eligibility for all participants and professionals before the conduct of the focus groups. Once selected, prospective focus group members provided demographic, educational, and research experience information in advance of the focus group, with research professionals and participants completing different forms geared to their roles. Personal identifiers were removed from the questionnaires, but the questionnaires remained linked to the focus group number and type for analytic purposes.

1. Coordination and integration of care and services
2. Respect for patients preferences, values, and expressed needs
3. Emotional support
4. Involvement of family and close others
5. Physical comfort
6. Information, education, and communication
7. Continuity and transition from hospital to home
8. Access to care and services

Table 1. The dimensions of patient-centered care.[12–17]

To provide consistency in the conduct of the study across centers, one experienced focus group moderator who was also a research social worker facilitated the focus groups for participants at all but one of the centers. One center requested permission to have a local moderator conduct the research participant focus groups. A second experienced moderator conducted all of the research professional focus groups via conference calls. The two main study moderators were independent of the protocol design team. An Executive Committee member served as an observer in each focus group.

Informed consent

The collaborating institutions differed in local IRB requirements for informed consent for focus groups. Seven IRBs required written informed consent, whereas one ruled the protocol exempt from review, obviating the need for written informed consent.

Focus groups

Focus groups followed a semistructured interview process according to the formats described in the two Moderator's Guides, including an initial introduction and a 90-minute moderator-facilitated discussion. The moderator validated the main themes heard during the focus groups by restating them at the end of the session and requesting participants to confirm or modify them. Focus groups were audiotaped and the Executive Committee observer took written notes. The moderator and observer held an audiotaped debriefing session immediately after each focus group, during which they identified and discussed the main themes of the focus group.

Research participant focus groups

Ten to 12 eligible research participants were invited to attend each participant focus group, with the goal of having eight participants. The first eight subjects arriving were included in the group; participants arriving after the first eight were thanked for their willingness to participate, given the compensation, and released without participating. Focus groups accruing fewer than eight members were conducted if at least five research participants were available. The research participant Moderator's Guide included open-ended questions designed to facilitate discussion about several specific aspects of research participation (Table 2).

Research professional focus groups

Research professional focus groups were comprised of professionals who had at least 2 years of clinical research experience immediately before the study. Six to eight research professionals were invited to each focus group conference call; the focus groups were conducted if at least four research professionals participated. The research professionals' Moderator's Guide was designed to elicit discussion about the themes enumerated in Table 2.

Research participants' groups
1. Reasons participants join research studies
2. Informed consent
3. Positive and negative aspects of the research experience
4. Reasons participants remain in research studies
5. Reasons participants drop out of research studies
6. Family involvement and familial reaction to participation
7. Comparison of expectations versus experiences in research
8. Enrollment recommendations
9. Suggestions for making research participation easier
10. Experiences around recruitment
11. The role of incentives
12. Misconceptions about research
Research professionals' groups
1. Concerns on behalf of research participants
2. Perceived participants' concerns
3. Informed consent
4. Participant expectations
5. Reasons participants stay in research studies
6. Reasons participants leave research studies
7. Retention by study type
8. Barriers for participants
9. Resources to overcome barriers
10. Comments about the participant survey
11. Community involvement

Table 2. Specific issues discussed in focus groups.

Audiotapes and transcripts

Permission for audiotaping was included in the informed consent process, and the moderator's opening comments reminded participants about the taping. Audiotapes were kept in a secure location by the moderator until delivered to NRC Picker staff for transcription. Names, institutions, and other identifiers were redacted from all transcripts, observer notes, and debriefing notes before analysis. Focus group transcripts were analyzed systematically by coding the data into emerging themes. Specifically, the analysis team imported transcripts into the analysis software, NVivo (QSR International, Cambridge, MA, USA), which allows the analyst to code qualitative data into an index system to facilitate text searching and/or determine patterns in the responses. Coding involved careful reading of all text and documenting passages that related to the main ideas/themes that emerged.[20–22]

The Moderator's Guides were used as a framework for data analysis. Transcripts were analyzed using the "cross-case" technique.[23] Participants' discussion points were grouped according to topics defined in the Moderator's Guide. Unique perspectives on key issues were also included in the findings. Direct quotes

Total Research Participants N = 85 (mean age 50 years, range 19-86)						
Groups, N	**Gender**	**Ethnicity**	**Race**	**Language**	**Education**	**Employment**
Affected/Intervention (AI) 27	male 45%	not Hispanic 93%	White 58%	English 92%	high school 13%	full time 35%
Affected/Natural History (AN) 28	female 54%	not reported 7%	African-American 28%	not reported 8%	some college 28%	part time 19%
Healthy Volunteer (HV) 30	not reported 1%		Asian 2%		4 year college 31%	not in labor force 23%
			American Indian 2%		graduate school 26%	unemployed 9%
			not reported 9%		not reported 2%	seasonal 2%
						not reported 12%
Total Research Professionals N = 29 (mean age 50 years, range 31-76)						
Groups, N	**Gender**	**Ethnicity**	**Race**	**Language**	**Education**	
Investigators 7	male 24%	not Hispanic 97%	White 97%	English 100%	2 year college 7%	
Coordinators 11	female 76%	not reported 3%	Asian 3%		4 year college 10%	
Ethicists 11					Graduate 38%	
					PhD 17%	
					MD 21%	
					MD/PhD 3%	
					Not reported 4%	

Table 3. Demographics of participants and research professionals participating in focus groups.

from participants were referenced where useful to illustrate and support the findings. Themes were identified to represent ideas that emerged. Members of the Executive Committee and the Focus Group Subcommittee, as content experts, reviewed examples of the thematic analysis to align and validate the coding strategy.

Text from each focus group was analyzed separately, first by identifying individual issues that emerged, then organizing related concepts into categories or themes. A final index system was developed, consisting of the main concepts, themes, subthemes, and corresponding quotes. Both themes and main ideas were identified using inductive analysis.

Results

Eighteen focus groups were conducted from May to November 2008 across eight centers. Twelve focus groups conducted at seven centers involved only research participants. Four focus groups were conducted in each of the three categories of AI, AN, and HV. Nine focus groups at six centers were moderated by a single moderator, and three focus groups conducted at a single center were moderated by a second, local moderator. Six focus groups of research professionals were conducted by teleconference, moderated by a third moderator and included an observer. Two focus groups were conducted for each of the three types of research professionals.

Demographics

Participants in the 18 focus groups included 85 research participants and 29 research professionals. The demographic characteristics of those participating are delineated in Table 3. The relevant research experiences of participating professionals are summarized in Table 4.

Research participants had a wide range of experience with clinical research: some were participating in their first study, whereas others had completed 20 or more studies. Some participants had experiences at more than one research center and others at just one. Some participants relied heavily on participation in studies for income. Medical illnesses of affected participants included HIV infection, hepatitis, cancer, diabetes, epilepsy, rheumatoid arthritis, and cardiovascular diseases among others. Research professionals came from varied clinical and scientific backgrounds, and, overall, were very experienced in clinical investigation (Table 4).

Research participants' focus groups

Themes and motivation for participation

Themes identified in the focus groups fell into two general categories: (1) those discussed by both research participants and research professionals, and (2) those unique to one or the other group. Table 5 contains a list of participants' reasons for participating in clinical research from participant perspectives, categorized into 10 main themes. Participants most often identified that multiple factors motivated individuals to join research studies. Across all participant groups, altruism was the most cited reason for participation but was often combined with other reasons, such as interest in, or benefit to, the health of the participant or a family member.

Financial compensation emerged as a theme for motivation to participate in clinical research as a result of discussion with research participants from all the three groups, but was most commonly noted by healthy volunteers. Financial motivation was not, however, often cited as the primary motivation for

Number of studies conducted as an investigator	Source of majority of funding	Focus of clinical research (multiple answers permitted)	How often do you conduct the informed consent discussion?	Number of years in clinical research
Mean = 4.32	NIH grants 18 (66%)	Observational 8 (28%)	Never 38%	<5 years, 3%
Range = 0 to 20	Institutional 3 (10%)	Prevention 3 (10%)	Sometimes 24%	5–10 years, 35%
	Private sources 3 (10%)	Mechanics of disease 8 (28%)	Usually 17%	>10 years, 62%
	Industry 1 (3%)	Therapeutic/drug 11 (38%)	Always 21%	
	Other 3 (10%)	Behavioral 6 (21%)		
		Procedural 1 (3%)		
		Other 4 (14%)		
		Missing 1 (3%)		

Table 4. Self-reported relevant experience of research professionals in focus groups.

1. Altruism
2. Study topic relevant to the individual's health or the health of family/friends
3. Anticipated learning about science, research, or health topics from participation
4. Access to new therapies
5. Financial compensation
6. Free healthcare
7. Researchers enrolled as research participants
8. Family influence
9. Commitment to volunteerism
10. Previous positive experience with investigator

Table 5. Reasons identified by participants for participating in clinical research.

Participants' themes
1. Extent of satisfaction with the process
2. Time spent reading information
3. Adequacy, or clarity of information, or signing process
4. Individual approach to obtaining consent (style)
5. Extent to which characterization of risks is clear
6. Length of the process and repetition of content
7. Indifference to content of informed consent document
8. Instilling fear of study participation
9. Undue pressure to enroll
10. Adaptation of information to the individual
11. Use of video media
12. Degree to which process was engaging
Research professionals' views of aspects of the informed consent process likely to be important to participants*
1. Individual approach to obtaining consent (style)
2. Appropriate pace for the process (i.e., not rushed)
3. Length of the consent form
4. Clarity of the description of the risks
5. Use of techniques that confirm participant understanding
6. Level and clarity of language
7. Adequate time allowed between the consent discussion and start of the protocol
8. Absence of undue pressure
9. Trust
10. Clarity about freedom for participants to withdraw at any time

*Listed in order of the frequency with which each issue was identified.

Table 6. Themes identified relevant to the informed consent process.

participation. Affected participants cared most about access to new therapies, and, in several instances, participation in the research study was the only mechanism available to obtain access to experimental treatment for rare or advanced disorders. Access to free healthcare motivated many participants, but the reasons varied. Individuals in all the groups who did not have, or who had lost, healthcare insurance coverage stated that research participation was a means to gain access to free diagnostic testing and treatment, as well as to free prescriptions or over-the-counter medications. In addition, some healthy volunteers had the perception that if their screening tests and focused physical exams for study entry allowed them to participate, then they must be in good health.

Informed consent

Twelve themes emerged around the informed consent process in participants' focus groups (Table 6). In general, research participants were satisfied with the informed consent process, though their expectations varied widely. Some healthy volunteers explicitly stated that they joined studies to receive financial compensation, and stated flatly that they did not listen to the study explanation or attend to the content of the informed consent form. Other participants, including other healthy volunteers, stated that they cared about study risks and wanted detailed explanations during the consent process. Still, other healthy volunteers stated that they did not attend to risk explanations because they trusted the institution to protect their safety. Many participants appreciated having sufficient time to read the informed consent form and even suggested that forms be mailed to participants in advance. Some participants stated that the forms they read were too long and complex. Some study participants said they appreciated having detailed interactions with individuals obtaining informed consent. Most participants

Factors associated with positive experiences
1. Close relationships with research staff
2. Study involved learning and was interesting
3. Free health monitoring or treatment
4. Access to study results and publications
5. Feeling valued
6. Treated better (i.e., with more respect and attention) in research
7. Health improved
8. Being tended to (individualized attention)
9. Conquering fear, aversion
Factors associated with negative experiences
1. Pain, extended discomfort
2. Disorganized or unprofessional staff
3. Negative interactions with staff
4. Not receiving clinical test results during the study
5. Risks, side effects (fears or actual)
6. Cancellations, waiting
7. Payment problems
8. Unanticipated aspects of the study (i.e., "surprises")
9. Protocol too demanding
10. Lack of privacy
11. Undue pressure to stay in the study
Note: Listed in order of the frequency with which each issue was identified.

Table 7. Factors contributing to participants' perceiving the research experience positively or negatively.

appreciated clear basic language and repeated explanations in consent forms; only one participant felt that the low reading level language used in the consent form was insulting. In describing interactions with research investigators, some participants complained either about not having enough time to read or consider long consent forms, or about having the form read to them. Affected/Intervention protocol participants, in particular, often were not aware of, or did not recall receiving information from either the investigators or the consent forms that adequately described the full extent of the procedures or visits required. Participants commonly complained about not fully understanding how much of their time would be required to participate in the protocol.

Research professionals identified 10 themes relevant to the informed consent process as likely to be important to research participants (Table 6). Research professionals across all the three groups most often identified the research team members' individual personal approach to obtaining consent as important to a successful interaction. They also placed priority on not rushing the consent process, noting that providing sufficient time for the consent process demonstrates respect for participants and helps build trust for future study participation. Investigators also appreciated the importance of having an extended period of time for the informed consent process. Nurse coordinators indicated, however, that despite the recognized benefits of having time to obtain informed consent, occasionally the consent process is rushed.

Concerns about consent form length were raised in all the research professionals groups, but were more common among ethicists and nurses than among investigators. Professionals mentioned this issue more often than did participants. In describing their consent processes, ethicists and investigators emphasized the importance of ensuring that risks are clearly described. Ethicists were very concerned that participants receiving remuneration may be so eager to enroll that they do not carefully assess risks. Although participants also expressed a desire to have risks clearly defined, this issue was not ranked near the top of participants' concerns. All professionals underscored the importance of confirming participants' full understanding of the study and cited a variety of methods, such as pen and paper quizzes or verbal quizzes, to accomplish this task.

Factors associated with participants viewing the research experience positively

Factors associated with participants' viewing their clinical research experiences positively are listed in Table 7. Overwhelmingly, the factor most frequently identified as contributing to a positive experience was developing a close relationship with the research team. Many stated that the care and attention focused on them in the research process far exceeded what they experience during routine medical care. Many participants also enjoyed learning about health and disease, and some stated that this new knowledge improved their ability to care for themselves.

Factors associated with participants viewing the research experience negatively

The factor most frequently identified as contributing to negative participant experiences was pain or discomfort, often associated with procedures, such as intravenous line placement, phlebotomies, or lumbar punctures, especially when these procedures did not proceed smoothly. Cumulatively, issues related to study logistics, such as appointment or procedure delays perceived by the participant as because of poor organization or planning were also frequently cited as having a negative impact. Dismissive or unprofessional conduct or comments by research or medical staff was also perceived negatively and mentioned by all the groups at all the centers (Table 7).

Factors associated with participants' continued participation

Reasons participants identified for remaining in research studies included: staff responsiveness to requests, financial compensation, commitment to the research project, and investment by staff in individual participants. Positive relationships with research staff were the strongest reasons participants remained in studies. The most common reasons participants left research studies were: (1) studies were more demanding than expected; (2) unpleasant side effects, often associated with interventions; and (3) participant inconvenience (e.g., limited clinic hours, difficulty parking, and requirement for numerous visits).

Participants' comments regarding "expectations versus experiences" in research

Participants volunteered far-ranging comments about how their expectations for study participation compared with their actual experiences of being in research studies. The most common response was positive, in that participants noted that the experience met or exceeded their expectations. The next most common response was that they sometimes did not really

understand what was going to happen because, in the words of one participant, "you can't understand it until you experience it." For example, in one cancer study, the participant was unprepared for the profound fatigue related to cytokine infusions despite both the consent document and the individuals obtaining consent emphasizing this point. Participants also said some experiences were worse than they had been prepared to expect. Some Affected/Intervention protocol participants expressed disappointment in the limited clinical benefits of their studies.

Research professionals' focus groups

Themes and motivation for participation

In sharp contrast to the research participants' results, very few professionals identified altruism as a motivation for participants to join research studies. Professionals emphasized the high quality of healthcare in studies and health monitoring that is integral to many studies as important factors in participants' decisions to join studies. Professionals viewed financial compensation as a necessary incentive for many studies, especially those involving procedures. Opinions of professionals differed considerably in their perceptions as to whether the provision of "free healthcare" played a role in participants' decisions to join studies.

Concerns of professionals

Research professionals from all the groups identified participant safety as their greatest concern. Some investigators expressed uncertainty about whether the risks involved in some studies were worth the benefit. Nurses and ethicists expressed concern that risks associated with participation may be poorly understood by participants, and that without a clear understanding of the risks, participants are not able to provide truly informed consent. Furthermore, they worried that participants did not appreciate the concept of unforeseen risks. Nurse coordinators stressed the importance of ensuring that participants are aware of the availability of research staff to answer questions or address concerns.

The ethicists were also primarily concerned about participant safety, but their focus was on other aspects of safety. They worried about whether the science behind the studies was sound, whether true equipoise was present, and whether adequate safety nets were available to participants, especially those in placebo arms. They also expressed concern about whether study plans were implemented and monitored as proposed. Ethicists and investigators both voiced serious concern about protecting and assuring the rights of vulnerable populations, especially children. They were concerned about ensuring that children understood that participation is completely voluntary, noting that children may be more vulnerable to pressure to enroll, especially if pressure comes from one or both parents.

Investigators and nurses expressed concern about whether participant consent is free from undue pressure. Some professionals voiced concerns that participants may agree to take part in clinical studies partly because their trusted physicians suggested the study. Participants did, in fact, stress the important role of interaction with the research team or with their own doctors in recruitment. Professionals also expressed concerns about: remuneration being used to purchase illegal drugs; confidentiality; patients taking medications incorrectly; difficulties in scheduling; and clarity of communication.

Professionals' comments regarding expectations versus experiences

Many research professionals stated that participants' research experiences exceeded their expectations. Research professionals of all types expressed the conviction that participants' expectations were determined during the informed consent process. Ethicists, in particular, emphasized that the informed consent process was the appropriate time to align participants' expectations with research realities. Despite the prevailing view among most research professionals that participants' research experiences exceed expectations, ethicists and nurses agreed that participants' expectations are likely to vary with the study type, with participants who enter therapeutic trials are more likely to be disappointed than healthy volunteers.

Discussion

In the 45 years since Beecher's landmark publication and the subsequent revelations about the details of the Tuskegee study,[24–26] we have learned remarkably little about whether research participants perceive that their experiences have included informed consent, fair treatment, and protection from harm.[27–29] The paucity of insight into participants' perceptions is particularly disconcerting in view of the enormous interest and concern about the ethical and practical aspects of conducting clinical investigation in the intervening years, and the growth of an entirely new and extensive infrastructure to insure the integrity, safety, and transparency of clinical research. Instead of obtaining outcome measures by assessing the views of participants, almost all of the effort has been focused on the use of process indicators selected by expert opinion (e.g., a duly authorized, appropriately dated, and signed informed consent form) as surrogates for the ethical quality of the research.

Hospitals have obtained valuable outcome information about medical care and patient satisfaction using validated surveys[30–33] and so we have endeavored to emulate this methodology to obtain outcome data on the clinical research experience, including, but not limited to: the voluntary nature of research participation; the need to distinguish research participation from receipt of routine care; the recruitment and retention processes; the initial and ongoing informed consent process; the scientific and medical expertise and skills of the staff conducting the protocol; the emotional, cognitive, and sensory experiences that accompany research procedures; and the quality of the facilities and environment. To our knowledge, no prior studies have evaluated research participants' perceptions of these features.

However, one of the biggest surprises to emerge from the hospital data was that some of the factors that physicians and nurses consistently identified as likely to be important to patients were not identified as important by the patients themselves,[34–36] we also wanted to compare the perceptions and priorities of individuals who have participated in clinical research projects with those of clinical research professionals.

We choose the focus group methodology because: (1) this approach has been used successfully in the development of high quality clinical patient surveys; (2) the precise language used by participants in focus groups to describe their experiences can be used to develop questions for a formal survey instrument for clinical research participants; (3) opportunities for face-to-face exchange of thoughts and experiences, both among participants and between the moderator and participants, provides a depth of response not available in surveys; and (4) it provides detailed

Identified opportunity	Potential intervention
Motivation	
• Altruism as motivation for participation • Compensation as second order motivation for participation • Free healthcare as motivation	• Consider role of altruism in planning recruitment, retention, and conduct • Moderate the emphasis on compensation in recruitment • Guard against undue influence; facilitate access to available alternatives
Informed consent	
• Some participants under estimate risk • Participants do not understand the research study plan • "Diagnostic Misconception" that screening tests equal a clean bill of health	• Develop means to test and enhance understanding of study risks and requirements of participating • Reconstruct informed consent to address the limitations of study-related testing
Study conduct and retention	
• Participants desire, but do not receive their clinical results	• Implement standardized procedures to share clinical results with participants
• Participants desire, but are not informed of the results of the research study in which they participated	• Evaluate ethical issues relative to sharing overall research results • Where appropriate, develop and test standard procedures for sharing overall research results with participants
• Positive impact of professional and organized conduct by staff • Negative impact of unprofessional or disorganized conduct by staff	• Educate research teams on the impact of professionalism on participants' experiences and willingness to continue in studies. • Develop metrics for quality review and improvements on key items such as courtesy, respect, timeliness, and organizational workflow
• Under-appreciated value of "research partnership" to participants	• Explicitly acknowledge and respect role of participant as essential partner in research process

Table 8. Opportunities for improvement and possible interventions to address them in clinical research processes.

insights into subtle aspects of human motivation that may not be obvious even to experienced research professionals in the day-to-day conduct of research. We recognize, however, that this methodology has limitations, including the qualitative nature of the data, the limited number of participants, the potential bias inherent in purposeful recruitment of focus group participants, and the subjective nature of the interpretation of the data. For these reasons, focus groups are only the first step in our project to develop a comprehensive survey of research participants' perceptions of the research process. The next step will be to assess the concordance of the results of that survey in a large cohort of research participants with data from the focus groups. We anticipate that these two datasets will be complementary, providing information that neither could provide alone.

Several themes emerged from the focus groups that are worthy of further consideration (Table 8). Remarkably, although many factors contributed to participants' decisions to join studies, altruism emerged as the most common reason. Whereas it may seem counterintuitive that altruism, rather than perceived benefits connected to immediate self-interest, is highest on the list, a growing literature supports altruism as a major motivation for participation in research. Altruism tempered by other considerations, including personal benefit, has been reported to play an important role in participation in several cancer-related studies and has recently been termed "conditional altruism."[7,9] Surveys conducted by the NIH Clinical Center on a broad sample of volunteers participating in clinical research are in accord with the focus group results, because they have consistently identified altruism as among the top reasons for participation (Lee, LM, Henderson, DK, unpublished data). In addition, recent studies investigating the neurologic basis and evolutionary advantages of altruism have identified strong positive rewards experienced by individuals who participate in altruistic behavior.[8,37,38] Thus, a complex picture is emerging about the role of altruism in human motivation.

The role of financial compensation remains an enigma.[10] Whereas financial compensation was one of several factors motivating participation, it was almost never the primary factor. Nonetheless, all participant groups identified remuneration as motivational. Research professionals, on balance, seemed to overestimate the role of compensation as a motivator.

The motivation to enter a research study to receive healthcare may reflect the problems in access to care that exist in the United States healthcare system. In addition to the economic benefits of receiving free healthcare, participants cited the personalized attention and increased amount of professional time committed to their care as powerful motivators. The issue of undue inducement to participate may be important to consider for those who have little or no health insurance and may have accepted risks associated with research participation that they otherwise would not have accepted, to gain access to medical care. Providing access to social services to explore nonresearch sources of healthcare may be an important part of assuring participant autonomy.

Participants expressed overall satisfaction with the informed consent process and they understood that they had the right to withdraw from studies at will. However, some participants, including both healthy volunteers and patients with serious disorders seeking novel treatment options, explicitly stated that once they were intent on participating, they did not care what the investigator or the informed consent form said about the

study risks. Similarly, despite undergoing extensive informed consent processes, participants still did not realize the full extent of their commitments with regard to research visits and procedures.

Research professionals place much more emphasis on participant safety than research participants themselves do, and remarkably, this finding holds up even in instances in which participants have suffered adverse events. Given the amount of time that investigators, IRBs, and clinical research coordinators devote to explaining risks of participation, the fact that participants do not voice safety concerns more prominently is surprising. Future studies should focus on how to communicate risks to participants to align their perceptions of those risks better with those of the research professionals.

Given participants' satisfaction with the informed consent process, a surprising area of poor communication identified in the focus groups is participants' lack of understanding of what will happen to them in a study. The frequency of inaccurate expectations expressed by participants reinforces the need for measures of participants' experiences, rather than just process-based assessments. Future research needs to explore in depth the barriers to participant comprehension, including the "therapeutic misconception,"[39,40] excessive participant trust in clinical research staff, and research subject denial.

The motivation to participate in research to obtain a general healthcare checkup is a serious concern that emerged from our study, and raises the possibility of research participants being vulnerable to a "diagnostic misconception" to complement the well-established "therapeutic misconception."[39,40] The mistaken belief that having a protocol-directed medical history and physical exam and a protocol-specified set of diagnostic tests that do not identify significant medical findings is the equivalent of being given a clean bill of health, poses serious medical and ethical issues. Future studies should be directed to creating new consent language that ensures that participants understand the limitations of the diagnostic procedures and tests performed in the study they are considering joining.

One strong theme that emerged from the focus groups was that participants want to share in the scientific discovery process. Participants consistently expressed disappointment if they did not receive test results during or after a study. This desire extended beyond the results of their routine medical tests, to include research results. They also wanted to know the outcomes of the studies in which they participated, irrespective of the lag time in data analysis or the ultimate medical relevance for their care. This view was expressed not only by participants for whom group/placebo assignment could have therapeutic implications, but also very broadly by participants in all types of studies who linked this information to their feelings of being valued. Thus, participants want to share broadly in the new knowledge that comes both from their participation in the study as well as from the overall study. This theme has received relatively little attention in the literature on protection of human subjects, though recently some authors have advocated for the routine return of aggregate results to participants in cancer trials.[41] Future studies should be targeted to address the issue of whether to develop uniform policies about providing study outcomes to participants in lay language as an integral part of research design.

Participants' personal relationships with their research teams are of paramount importance to satisfaction with their clinical research experiences. This theme, which has been suggested previously,[27] stands out as among the strongest in the entire study. Participants most appreciated a team that was caring, respectful, and responsive. This relationship was also a major factor in participants' decisions to remain in studies. Some participants expressed feelings of personal abandonment and loss when research staff were transferred or when studies ended without opportunities for future contact. Of note, research professionals did not identify the importance of these relationships as key contributors to participant satisfaction. Participants expressed the importance of this relationship in both positive and negative ways—as part of the motivation to continue in, or return to participate in subsequent studies, and, when kindness was absent, as a specific reason to leave a study. The depth and importance of these relationships highlights the importance of the training, skills, and sensitivity of each research team member. On the other hand, such close relationships might raise the potential for undue influence, with the possibility of the loss of the relationship even being viewed as subtle coercion to continue in a study. If future studies confirm our findings, focused attention should be directed to training research staff members in developing positive relationships, however safeguarding against using the relationship in a way that exerts undue influence.

Conclusion

Our study underscores four major points: (1) we have an extraordinarily limited understanding of what motivates individuals to participate in research; (2) we have only a rudimentary understanding of how clinical research participants perceive their experiences; (3) existing quality control processes provide virtually no insight into whether research participants understand the information provided to them as part of the informed consent process; and (4) if our findings are confirmed in subsequent studies, clinical researchers have extraordinary opportunities to improve these processes. In many instances, we believe that modest changes in policy can successfully address participants' concerns. We believe that findings from this study underscore the need to incorporate participants' perceptions into clinical research processes and provide compelling evidence for the need for continuous performance improvement activities in clinical research.

Conflict of Interest

Jennifer Yessis, Ph.D. was a survey scientist employed by NRC Picker, Inc., a commercial developer and vendor of healthcare surveys during part of the conduct of this study. NRC Picker plans to develop a commercial research participant survey based, in part, on the results of the focus groups. Dr. Yessis has no financial interest in NRC Picker, Inc. or any future commercial survey.

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