

Racial differences in public perceptions of voluntariness of medical research participants in South Africa

Nicola Wendy Barsdorf^a, Douglas Richard Wassenaar^{b,*}

^a*HIV AIDS Vaccines Ethics Group (HAVEG) School of Psychology, University of KwaZulu-Natal, Pietermaritzburg, South Africa*

^b*HIV AIDS Vaccines Ethics Group (HAVEG) and South African Research Ethics Training Initiative (SARETI), School of Psychology, University of KwaZulu-Natal, Pietermaritzburg, Private Bag X01 Scottsville, 3209, South Africa*

Abstract

The reign of apartheid in South Africa was characterized by systematic violation of the human rights of the Black population. Ruling institutions of the country perpetuated and enforced such violations. Consequently, Black South Africans may be apprehensive of scientific research in which the Black population is targeted for participants, regardless of the reason for their being selected. This exploratory study aims to (1) contribute to the relatively limited body of empirical research on the concept of voluntariness and (2) assess racial differences in public perceptions of the voluntariness of medical research participants. We sampled 111 employees from two companies. The sample consisted of 39 Black, 37 Indian, and 38 White participants. A structured questionnaire was used to interview respondents. Results showed that Black respondents scored significantly lower on scores of perceived voluntariness than both Indian and White respondents. These racial differences in perceptions of voluntariness were found to be independent of level of education, knowledge of medical research procedures, and close or personal experience of medical research. Perceptions of voluntariness did not however appear to impact on participants' personal willingness to participate in future research. Implications for recruitment of future health research participants in South Africa are discussed.

1

Keywords: Voluntariness; Race; Research participants; Consent; South Africa

Introduction

Throughout history "it is the socially powerless and disadvantaged who are most likely to be subjected to unethical research" (McNeill, 1993, p. 17). In America, the Tuskegee Syphilis Study symbolises the most egregious abuse by medical researchers of a vulnerable group (Savitt, 1982). This has been associated with low participation of Black respondents in subsequent

American clinical trials (Fairchild & Bayer, 1999; Lederer, 1995; Northington Gamble, 1997).

South Africa's history includes the lengthy reign of apartheid, characterized by the violation of human rights of the Black population. Such violations were perpetuated and enforced by the ruling institutions of the country. For research, the situation was no different. Black people were targeted as research participants due to their obvious vulnerability (Baldwin-Ragaven, de Gruchy, & London, 1999).

Such unethical research, both abroad and in South Africa, may have created a public perception that medical research participation is less than voluntary. Under-representation of Black persons in clinical trials

*Corresponding author. Postal Address: Private Bag X01 Scottsville, 3209, South Africa Tel.: +27-33-260-5373.

E-mail addresses: nbarsdor@jhsph.edu (N.W. Barsdorf), wassenaar@ukzn.ac.za (D.R. Wassenaar).

in the USA (Fairchild & Bayer, 1999) may be evidence of this perception. Consequently, Black individuals today may be apprehensive about participation in scientific research in which the Black population is targeted as participants, regardless of the reason for their being targeted. Internationally, there are parallel concerns: on the one hand, disadvantaged communities should be included in research trials if they stand to benefit (Benatar, 2001; Kass, 1998; Lackey, 2001; Swanson & Ward, 1995), while on the other, the vulnerability of such communities to exploitation is seen as warranting extraordinary ethical scrutiny and standards (deCastro & Sy, 2001; Schüklenk, 2000).

There are about thirty HIV vaccine initiatives at various stages of development internationally (Slack et al., 2000). At least six of these are in Africa (IAVI, 2003a, b). Recent results of the VaxGen HIV vaccine trial showed that the vaccine may be specifically effective in Black persons, but there were too few Black participants (314 of 5009, or 6%) in the trial to support the findings unequivocally (Bull, 2003). These data point to the need for greater inclusion of Black persons in future vaccine trials (Bull, 2003). In South Africa, a local vaccine has entered Phase I trials.

Preventive vaccine trials are ethically complex (UNAIDS, 2000). Given the demographics of HIV infections in developing countries (Jackson, 2002), phase III vaccine trial participants will probably be drawn from Black communities rendered vulnerable by poverty, illiteracy, historical oppression, acculturation and poor access to health care (Lindegger, Wassenaar, & Slack, 2001; Makgoba, Solomon, & Tucker, 2002). Perceptions of research trials by potential participants need to be known to facilitate the ethical recruitment and enrolment of future vaccine trial participants. This is consistent with recent calls (Benatar, 2002) to precede health research in developing countries with social science research to sensitise health researchers to local cultures, customs, perceptions, attitudes and resources.

Unethical human experimentation

While researchers are generally encouraged to respect the dignity of persons while carrying out research, this is not always the case (Washburn, 2001). Reports of unethical research conducted on human participants from vulnerable or disadvantaged groups date as far back as the 1800s and the era of slavery (Axelsen, 2001; Lederer, 1995; McNeill, 1993; Winerip, 2000). The abuses of research participants in research during the twentieth-century have been well documented and will not be detailed again here (Kimmel, 1996; Lederer, 1995; Lifton, 1986 cited in McNeill, 1993). The Nuremberg Code stemmed from the judgement of atrocities by health professionals in Nazi Germany. International

efforts have since been made to improve ethical standards in human subjects research, including a proliferation of ethical codes, declarations, publications, regulatory bodies, and debates on research ethics (Tollman, 2001). Many current research ethics guidelines were written in response to specific abuses, in the hope of preventing recurrences (Emanuel, Wendler, & Grady, 2000).

Specific ethical guidelines for HIV vaccine trials were published by UNAIDS (2000), and have been revised and adapted for South Africa in 2004 (MRC, 2004) as the UNAIDS document lacks local specificity (MacQueen, Abdool Karim, & Sugarman, 2003).

Special attention needs to be paid to the protection of participants' autonomy in particularly vulnerable populations or subgroups (Agrawal, 2003; Emanuel, Wendler, Killen, & Grady, 2004). Simple justice requires that each socio-economic group bears a proportionate share of research risk (Jenkins, 1985), but many researchers fall into the trap of recruiting participants from dependent and less privileged populations. Developing countries, and particular communities within developing countries, arguably fall within this category.

Unethical research in South Africa

Racism, the defining characteristic of the apartheid era, had the effect of maintaining power inequalities between groups. It resulted in continued and widespread discrimination against individuals in employment, housing, education, health care and political expression (Wetherell, 1996). Violations of human rights during apartheid (Baldwin-Ragaven et al., 1999; Guardian Newspapers, 1998) no doubt impacted negatively on health practice and research in South Africa. Unethical research after South Africa's democracy in 1994 (Cohen, 1997; Smith & Nicodemus, 1999; Schoofs, 2001), some targeted at previously disadvantaged segments of the population (Magardie, 2000; Vermaak, 2000), could serve to reinforce an already tainted public perception of the voluntariness of medical research participants.

Research in developing countries

Due to the risk of inadvertent or deliberate exploitation, a cautionary approach is recommended when conducting research with human participants in developing countries. Glantz, Annas, Grodin and Mariner (2001) state:

Citizens of developing countries are often in vulnerable situations because of their lack of political power, lack of education, unfamiliarity with medical interventions, extreme poverty, or dire need for

health care and nutrition. It is the dire need of these populations that make them both appropriate participants of research and especially vulnerable to exploitation (p. 262).

This combination of need and vulnerability has led to the development of specific guidelines for health research in developing countries. Pre-eminence is generally accorded to the Council for International Organisations of Medical Sciences (CIOMS) guidelines, published for research with participants from so-called underdeveloped communities (CIOMS, 2002). Several authors (Emanuel et al., 2000; Emanuel, Wendler, Killen, & Grady, 2004; Folb, 1985; Jenkins, 1985; Lackey, 2001; Nuffield Council on Bioethics, 2002; Teays & Purdy, 2001) propose that meticulous attention be paid to the issues of moral justification, adequate research design, risk-benefit ratio, safety of participants, compensation for injured participants, confidentiality, equitable selection of participants, proper protection of at-risk persons, and informed consent.

Informed consent

The Nuremberg Code brought informed consent to the forefront of ethical practice in research. Volunteers competent to consent should be provided with accurate information, understand the information, and then make a voluntary decision about participation (Emanuel et al., 2000). In our view, information disclosure and understanding have been heavily researched with insufficient empirical attention to voluntariness. Voluntary decision-making is linked to “autonomous authorization” (Beauchamp & Childress, 2001, p. 78)—the perception of which is a focus of this study. Our focus here is thus on perceptions of the preconditions of informed consent, rather than on whether the public understands and comprehends.

Defining voluntariness

Voluntariness implies that the research participant should be free from coercive influences and undue pressure in reaching a decision of whether or not to participate in research (Stanley & Guido, 1996). Beauchamp and Childress (2001) assert that, “a person acts voluntarily to the degree that he or she wills the action without being under the control of another’s influence” (p. 93). Other authors adopt similar conceptions of voluntariness, “a choice or action that is free from coercion and undue influence from other people” (Agrawal, 2003; Nelson & Merz, 2002). For the purpose of this study, voluntariness is defined as the situation-specific experience of willed action with freedom from

coercion or control by others in decision-making. This operational definition of voluntariness assumes that the requirements of information disclosure and understanding have been met and that persons are free from other conditions (e.g., psychiatric illness, imprisonment) that might diminish free decision-making.

Despite codes of ethics and regulations, there is ongoing evidence of unethical recruitment and research practice (LaFraniere, Flaherty, & Stephens, 2000; Stephens & Flaherty, 2001). This malpractice generally violates the autonomy of research participants and targets the vulnerable subgroups of a given population (Baldwin-Ragaven et al., 1999; Flaherty, Nelson & Stephens, 2000; Gillespie in McNeill, 1993; Lederer, 1995). Together with the legacy of apartheid, reports of unethical research conducted both abroad and in South Africa may have impacted negatively on public perceptions of the voluntariness of research participants.

Public perceptions of medical research

“The NIH Revitalization Act of 1993, which mandates inclusion of women and minorities as subjects in clinical research, makes it incumbent on investigators to understand and respond to the attitudes and beliefs of potential research participants” (Corbie-Smith, Thomas, Williams, & Moody-Ayers, 1999, p. 542). The body of literature on public perception of medical research is however both relatively young and limited (Ganz, 1990), with pioneering studies dating back less than 4 decades (Martin, Arnold, Zimmerman, & Richart, 1968; Brackbill & Golden, 1979).

Some studies indicate that medical research has a generally positive image among the public (Dawson, 2000), that in general, there is no evidence of antipathy to the concept of randomised trials (Kemp, Skinner, & Toms, 1984), the public views trials as ethical and important (Ganz, 1990) and that there is a high degree of public belief in the non-egoistic motivation of medical researchers (Rossel & Holm, 1999). The studies by Cassileth and Lusk (1982), Dawson (2000) and Ganz (1990) however, all suggest that certain minority groups within the general population hold differing perceptions than those of the majority, warranting particular study.

Minority group perceptions of medical research

The literature on minority group perceptions of research is scarce and based mainly on studies conducted in the US. These studies have demonstrated that cultural attitudes regarding inequities in health care have a significant influence on research participation. Moreover, these beliefs are often based on past negative experiences derived from a history of racial bias where

participants' rights in research studies were violated (Welsh, Ballard, Nash, Raiford, & Harrell, 1994) or real fears and anxieties concerning future medical abuses (Dula, 1994). Dula maintains that these real, imagined, and potential abuses explain and ground African American mistrust of the medical profession.

Additionally, the literature suggests that key problems or barriers in recruiting ethnic and racial minorities into clinical trials include: (1) an extensive knowledge of the Tuskegee Syphilis experiment, creating distrust and suspicion towards research efforts; (2) fear and mistrust of the health care system because of indifference and disrespect exhibited by some health care professionals towards the socio-economically disadvantaged; (3) fear of being used as "guinea pigs" and (4) fear and mistrust of federally sponsored projects, academic medicine, and clinical research, shaped by general racial and ethnic discrimination and segregation (Corbie-Smith et al., 1999; Gorelick, Harris, Burnett, & Bonecutter, 1998; Swanson & Ward, 1995).

Summary

Despite a growth in efforts to protect research participants from abuse and exploitation, unethical human experimentation has been reported in South Africa and abroad. Vulnerable or disadvantaged groups appear to have been the main targets of these unethical practices. These groups are especially vulnerable to exploitation due to their lack of political power, lack of education, unfamiliarity with medical research, extreme poverty, or dire need for health care (Teays & Purdy, 2001). Relatively few studies have examined public perceptions of medical research. Even fewer have elicited the attitudes of vulnerable or disadvantaged groups towards research and participation (Corbie-Smith et al., 1999; Swanson & Ward, 1995). More specifically, no literature (in South Africa or abroad) was located on racial differences in public perception of voluntariness of medical research participants.

Eliciting the public's perception of the voluntariness of research participation may be an important first step when planning research. Historically disadvantaged or vulnerable populations may be less inclined to view health research participation as voluntary. This may impact negatively on research enrolment, perpetuating the focus of health research on particular populations and failing to attract research populations who could most benefit from research (Benatar, 2002; Isaakidis, Swingler, Pienaar, Volmink, & Ioannidis, 2002; Ruge-malila & Kilama, 2001). Gaps in the existing literature provide a motivation for the present study, which aims to assess racial differences in public perception of voluntariness of medical research participants.

Aims and hypotheses

The primary aim of this study was to contribute to emerging empirical research on the concept of voluntariness. Specifically, we hoped to determine whether there are race-based differences in public perceptions of voluntariness of participants in medical research.

Secondary aims included: (1) to establish whether racial differences were independent of respondents' level of education, knowledge of medical research procedures, and personal or close experience of medical research; and (2) to assess whether there were racial differences in respondents' willingness to volunteer themselves for medical research.

Sample and respondents

For this exploratory research, the sample consisted of 111 employees. One hundred and five respondents, of a possible 250 employees from a large company, volunteered to participate in the study. Thirty-nine Black employees (31 males, 8 females), 37 Indian employees (31 males, 6 females), and 35 White employees (28 males, 7 females) participated in the study. This sample was hypothesised to reflect a racially pluralistic population group. As Black female respondents in the initial sample ($n = 1$) were underrepresented, an additional six Black females were recruited from a smaller company to make the sample more proportionate.

Participation in the study was voluntary. The research was described as exploring public perception of voluntariness of medical research participants. Written informed consent was obtained from respondents. Individuals and their employment sites were assured of confidentiality. The Research Ethics Committee of our base institution approved the study.

Sample selection

The researchers approached a number of local companies in order to recruit a cross-racial sample in a single site. Four companies were formally approached. One rejected the proposal as research was already being conducted there. The second was a pharmaceutical company. This sample might have been biased by employees' knowledge of the manufacturing of medicines.

Two companies expressed interest in cooperating. A letter requesting permission to conduct research was posted to the Human Resource Manager of each company. A meeting to discuss the project in detail followed response to the letter. After agreement to cooperate was reached at these meetings, a notice describing the research and inviting participation was

made available to all the employees a week in advance of the proposed data collection by means of e-mail and messages on the company notice board. Complete confidentiality of both individual information and the identity of the company were assured.

Instrument

Questionnaire development

An extensive, expert-assisted, literature search for an appropriate questionnaire was conducted without success. In the absence of an existing questionnaire, the authors constructed a questionnaire¹ based on both the literature review and the hypotheses of the study. The questionnaire was submitted to four independent behavioural researchers with competencies in behavioural health research, research ethics and questionnaire design. Numerous new items were generated and some items were altered. The questionnaire was translated into IsiZulu by an independent, first-language, IsiZulu-speaking person. This translation was also proof read by a second, independent, first-language, IsiZulu-speaking academic. The questionnaire was not back translated due to financial and time constraints.

Description of questionnaire

The questionnaire comprises four sections containing forced choice items and requesting, where possible, respondents' reasons, for their selection. Section 1 comprises demographic questions on age, gender, race, occupation and education level. Section 2 contains four questions to elicit respondents' knowledge of medical research procedures.

Section 3 contains 20 questions designed to elicit respondents' perceptions of voluntariness in a variety of research related situations. Perceived voluntariness was assessed using 20 fixed-choice items on our questionnaire that ranged from items which asked respondents to rate their perception of participants' voluntariness in several domains of research e.g., the characteristics of people who are chosen, and under what conditions people enrol in medical research.

- Question 9 elicits respondents' perceptions of how potential participants are recruited for medical research and provides fixed-choice options that distinguish between possible voluntary and non-voluntary recruitment for participation i.e., people could select from criteria which would commonly be associated with either free or impaired voluntariness.

¹Available from the authors on request.

- Question 10 elicits respondents' perceptions of who should be used in medical research and provides fixed-choice options that distinguish between autonomous and coercive variables that may affect decision-making i.e., people could select from criteria which would commonly be associated with either free or impaired voluntariness.
- Questions 11 through 16 provide hypothetical examples of research conducted in South Africa in increasing degrees of risk. Each question has 2 sub-questions and elicits respondents' perceptions of whether Black and White participants respectively would be autonomous/feel free in deciding whether or not to participate.
- Further questions (17–22) examine whether respondents believe it is the norm for researchers to seek voluntary signed consent from participants from different race groups.

Respondents' responses to questions 9 to 22 (a total of 20 questions) were coded into two categories, either a response indicative of perceived voluntariness (score = 2), or a response indicative of perceived low voluntariness in participation (score = 1). For each respondent, a score was obtained for the sum of questions 9 to 22 that was either higher (representing higher perceived voluntariness) or lower (representing lower perceived voluntariness). The possible scores range from 20 to 40. For each race group, a mean of these scores was calculated.

Section 4 contains three questions, two eliciting respondents' experience in medical research and one eliciting their willingness to volunteer for medical research.

- Questions 24 to 26 asked whether respondents or anyone they knew had participated in health research and further asked whether respondents perceived such participation as voluntary or forced.
- Question 27 simply asked whether respondents would personally be willing to participate in research testing a medication or vaccine.

Data collection

Two interviewers conducted the interviews. The primary interviewer was the researcher and the second was an African, IsiZulu-speaking colleague who was involved in the translation of the questionnaire. The researchers conducted interviews at company A over a period of 4 days. A booth was used to conduct interviews in various departments. Volunteers were invited to enter the booth at their leisure. Black respondents were given the option of being interviewed

in either English or IsiZulu (8 of the 39 Black respondents chose English). A brief description of the research was presented to each respondent before committing himself or herself and completing a consent form. Interviews lasted approximately 10–15 min. At company B, interviews were completed in a single day and the same procedures used. The questionnaire was administered using a structured, one-to-one interview, which favoured the clarification of items to respondents and answering their questions.

Data analysis & results

Psychometric properties of the questionnaire

Using SPSS for Windows (SPSS Inc., 1999), the cluster of 20 questions (indicating respondents' perceptions of voluntariness of medical research participants) demonstrated an acceptable internal reliability, with an alpha co-efficient of 0.8. This indicates that the cluster can justifiably be regarded as a scale. The cluster of questions 2–4 (indicating respondents' knowledge of medical research procedures) demonstrated excellent internal reliability for only three items, with an alpha co-efficient of 0.7, and could possibly be considered a short scale. Formal evaluation of the validity of the scale was beyond the scope of the present study.

Sample of black women from company B

Based on the scores of perception of voluntariness, a one-way ANOVA was conducted to compare the Black women in company B to the Black women in company A, to assess whether these female respondents were outliers. Apart from gender and place of work, there was no significant difference between the two groups. The females were therefore included in the analyses to raise the number of Black females in the sample

Demographic information

The majority of respondents (81%) were male. Females ($n = 21$) were underrepresented in the sample ($N = 111$). Education was classified into four main categories: Grade 10, Matric, Tertiary Diploma and Degree. Black respondents featured most strongly in the first category, White respondents dominated the Degree category, while all three races were represented relatively evenly as having qualified with Matric or Tertiary Diploma. Most Black respondents were under 35 years of age, most Indian respondents were below the age of 40, and most White respondents were over 30.

Racial differences in perceptions of voluntariness of medical research participants

Respondents' responses to questions 9–22 (20 questions in total) were summed to calculate a score of "perceived voluntariness" with a possible range of scores from 20 to 40. Respondents' actual scores ranged from 24 to 40. Black respondents scored between 24 and 40, Indian respondents scored between 28 and 40 and White respondents scored between 32 and 40. A one-way ANOVA revealed a significant racial difference in perceptions of voluntariness ($p < .001$). In order to establish where the variance lay, Scheffe's post-hoc multiple comparisons test revealed that Black respondents ($X = 34.48$) scored significantly lower on perception of voluntariness than White respondents ($X = 37.77$) ($p < .001$) as well as significantly lower than Indian respondents ($X = 36.67$) ($p = .019$).

Level of education, knowledge of medical research procedures, and experience of medical research as predictors of perceptions of voluntariness

Stepwise regressions were conducted to determine whether racial differences in perceptions of voluntariness were independent of respondents' education levels, knowledge of medical research procedures, and personal or close experience of medical research respectively. A newly created variable was used which divided race as 'Black' or 'non-Black' i.e., White and Indian scores were collapsed into one group as they were so similar. Stepwise regression revealed that 11.8% of the variance in perception of voluntariness was accounted for by race ($p = .004$) and 16.1% of the variance in perception of voluntariness was accounted for by education level ($p = .012$). Although education accounted for more variance than race, both accounted for unique variance. As perceived voluntariness is the focus of this study, we do not focus further on the significance of education on perceived voluntariness.

Knowledge of medical research practices was not a significant predictor of perceptions of voluntariness. Personal or close experience of medical research was also not a significant predictor of perceptions of voluntariness.

Willingness to volunteer one's self for medical research

Race was cross tabulated against willingness to volunteer and a Chi-square test was conducted to determine whether there were racial differences in respondents' willingness to volunteer themselves for medical research. The results of the Chi-square revealed no significant racial difference in respondents' own willingness to volunteer for medical research ($p = .935$). About 50% of the whole sample, spread equally across

the three race groups, showed themselves willing to volunteer for medical research.

Discussion

Racial differences in perceptions of voluntariness of medical research participants

Black respondents scored significantly lower on perceptions of voluntariness than Indian and White respondents. This finding confirms the hypothesis that there are racial differences in the perceived voluntariness of research participants. White respondents scored higher on perceived voluntariness than Black and Indian respondents. While White respondents scored only marginally higher than Indian respondents, they scored significantly higher than Black respondents. Indian respondents scored significantly higher than Black respondents on perceived voluntariness. As predicted, Black respondents scored the lowest on perceived voluntariness of research participation i.e., our findings showed that Black respondents had the lowest scores on the perception of voluntariness in health research.

While there are no preceding studies of perceived voluntariness with which this data can be compared, this finding may echo Black respondents' negative attitudes towards the medical establishment found in previous studies (Corbie-Smith et al., 1999; Gorelick et al., 1998; Swanson & Ward, 1995; Welsh et al., 1994). It could be argued that South Africa's history of apartheid has resulted in pervasive mistrust by Black South Africans of formal institutions in South Africa, including the institution of medicine (Wetherell, 1996). Additionally, Apartheid-era violations of human rights of the Black population, including the right to freedom of choice, may be responsible for some residual post-apartheid impairment of perceived and experienced voluntariness. The absence of freedom of choice characteristic of this era, possibly explains the lower perceived voluntariness among Black respondents in terms of participating in activities initiated by these institutions. This may be analogous to the fatalism described by Whiteside and Sunter (2000). These hypotheses remain to be verified in future studies.

Furthermore, during and after the apartheid era, cases of unethical research targeted at the Black population of South Africa have been reported. Black South Africans were unwillingly and unwittingly subjected to research that violated their right to freedom of choice (Magardie, 2000; Smith & Nicodemus, 1999; Vermaak, 2000). These unethical studies may have dented an already tarnished image of the medical profession. Corbie-Smith et al. (1999) demonstrated that African Americans distrust the medical community, citing real and perceived examples

of exploitation in medical research against their race group. It could thus be argued that negative media portrayals of exploitative research could taint present perceptions. Previous studies conducted in an unethical manner in South Africa could serve to both reinforce and contribute to the negative perception by Black persons of the medical establishment in general, and to the perception of lower voluntariness in health research. However, a weakness of our study design did not directly ask respondents if they had knowledge of reported abuses or exploitation in local or international medical research, so the causes of the lower perceived voluntariness remain speculative and unresearched.

In light of the above discussion, possible explanations for the higher perceived voluntariness among Indian respondents could be: (1) apartheid may have affected Black South Africans more than Indians, and (2) there are no reported cases of unethical research known to have targeted the Indian population in South Africa.

Level of education, knowledge of medical research procedures, and experience of medical research as predictors of perceptions of voluntariness

Stepwise regressions revealed that while the level of education of respondents did account for significant variance in perception of voluntariness, this was unique variance and was independent of the effects of race. This finding is not surprising as restricted access to education was a prominent feature of apartheid oppression. While not central to the current study, it is recommended that future research be undertaken to establish the effect of education on perceptions of voluntariness of medical research participants. Knowledge of medical research procedures and personal or close experience of medical research did not predict perceptions of voluntariness. Hence, racial differences in the respondents' perceptions of voluntariness were independent of the education level of respondents, respondents' knowledge of medical research procedures, and respondents' personal or close experience of medical research.

It could be argued that the finding of race as an independent predictor of perceptions of voluntariness reinforces the notion that general racial discrimination during apartheid has tainted perceptions of voluntariness in Black South Africans. This effect may be reinforced by awareness of abuses of medical research (Corbie-Smith et al., 1999), but this component requires local verification.

Willingness to volunteer one's self for medical research

About 50% of the sample reported themselves willing to volunteer for medical research. Compared with other studies this finding reflects a surprisingly higher

percentage of willing respondents than most other studies – 31% (Brackbill & Golden, 1979), 42% (Slevin et al., 1995) though lower than the 63% reported by Kemp et al. (1984). Furthermore, the present study revealed no significant racial differences in respondents' willingness to volunteer themselves for medical research. Willingness to volunteer one's self was spread equally across the three race groups. Since previous studies eliciting respondents' willingness to volunteer for clinical trials (Brackbill & Golden, 1979; Kemp et al., 1984; Slevin et al., 1995) did not examine racial differences, there are no preceding studies with which these results can be compared.

The equal distribution by race of willingness to volunteer does however seem to contradict the first finding of lower perceived voluntariness amongst Black respondents in the current study. For the current study, several possible explanations of this apparent contradiction are proposed.

First, the equal willingness to volunteer amongst our three racial groups may conceal racially different experiences of personal agency. Given the low perceived voluntariness scores and a hypothetically diminished sense of agency engendered by years of oppression, it is possible that Black respondents in this study perceived volunteering as a form of passive compliance rather than an active wish to participate. This explanation, however, would be inconsistent with the political power and agency demonstrated by Black South Africans in dismantling the Apartheid regime. This argument, in turn, fails to distinguish individual from collective agency. The discrepancy between Black respondents' perceptions of low voluntariness in health research participation and their reported willingness to participate in future trials may also be influenced by the greater emphasis on autonomy and human rights in post-apartheid democratic South Africa. These speculations can only be addressed by further focused research on possible differences in experienced and expressed personal agency in South African individuals and population groups.

Second, a similar inconsistency was found by Skinner, Berry, Biro, and Jackson (1991) who established that willingness to volunteer was independent of the perceived ethicality of a particular study. They argued that there might be a difference between how research with *others* is perceived and willingness to volunteer *oneself* for research.

Third, the apparent contradiction in findings between "perceptions of voluntariness" and "willingness to volunteer oneself" could simply be an expression of inconsistency in expressed attitudes. Contradictory results demonstrate that individuals' attitudes are not always congruent. This is not an unusual occurrence as a surprising amount of variation is found in the evaluations that people make and hence attitudes at times are

seen to be inconsistent (Baron & Byrne, 1997; Wetherell, 1996).

Finally, the finding of low perceived voluntariness by Black respondents may be a more accurate reflection of respondents' perceptions than the finding of their willingness to volunteer, based solely on the measure used. Perceptions of voluntariness were assessed using a cluster of 20 questions that demonstrated an adequate internal reliability. Willingness to volunteer however was assessed using only one question. Considering the fact that this question was asked in the context of a one-to-one interview with the researcher, the results obtained might represent a response bias, in that respondents may have answered this one, very direct, question in a "socially desirable" manner. Alternately, it could be argued that the cluster of questions used to assess perceptions of voluntariness, asked respondents to assess the voluntariness of *other* people that may have participated in research. Respondents' perceptions of research carried out on others may be that it was done without voluntary consent. The question assessing respondents' *own* willingness to volunteer however, asked respondents directly whether they themselves would be willing to *volunteer* in medical research, implying that the research would be voluntary. This last claim supports Skinner et al. (1991)'s argument that there may be a difference in *perception of research with others* and *willingness to volunteer oneself*.

Limitations of the study

Instrument: As no existing questionnaire instruments were available for assessment of perceptions of voluntariness, the authors designed the questionnaire used in the current study. We recommend minor alterations for future users of the questionnaire to improve understanding of the questions by the respondents. Further efforts to establish and improve the validity of the questionnaire should be undertaken to ensure that the key variable of "perceived voluntariness" is indeed what the questionnaire elicits. Although our questionnaire obtained acceptable reliability scores, its validity remains to be verified. However, the fact that four independent behavioural researchers assisted in refining the 20 items and that the scores were reliable and in the expected direction, suggests at least face validity. Construct and criterion validity, both complex indices, remain to be established and for this reason some caution should be exercised in interpreting our findings.

Additionally, twelve of the questions in Section 3 of our instrument were based on hypothetical scenarios and examples of research. Respondents were asked to reveal their perceptions of whether research participants would feel free to either participate or refuse participation in these hypothetical research situations. An

obvious criticism of such questioning is that individuals may react very differently if this were actual research.

Analysis of data: Because it fell outside the central question of this study, we did not explore further the finding that education was an independent source of variation on “perceived voluntariness.” This needs further exploration.

Sample: The generalisability of the current sample is limited by the relatively small and variable sample size. Females were underrepresented due to the male-to-female ratio within the companies. Additionally, gender differences in perceptions of voluntariness were not assessed. The sample represents a convenience sample of volunteers from two local companies within an urban setting. As such, it does not address public perception of voluntariness in the general South African population and does not represent less educated rural populations.

Furthermore, respondents were themselves volunteers for this research and may in this sense not be representative of persons who might view participation in health research as even less voluntary than these respondents did. Speculatively, the non-respondents to this research might have viewed health research participation as even less voluntary than the present respondents, and might also be less willing to volunteer for future health research than the 50% level of willingness reported by the present sample.

Theoretical and clinical implications

Theoretically, the current research highlights the lack of literature on public perception of participation in medical research noted by several authors (Brackbill & Golden, 1979; Ganz, 1990; Kemp et al., 1994; Swanson & Ward, 1995), and the absence of any such work in South Africa. Additionally, Corbie-Smith et al. (1999) state that few studies have examined the attitudes of disadvantaged groups towards participation in medical research. More specifically, no literature (in South Africa or abroad) was located on public perception of voluntariness of medical research participants by race. This points to a sizeable gap in the literature. The study also attempts to contribute to redressing the imbalance in published literature on the voluntariness component of research participation in contrast to the voluminous literature on the information and comprehension components of informed consent.

The current study, while not generalisable to the entire South African population, suggests that Black respondents’ perceive participation in medical research as less voluntary than White and Indian respondents. Although beyond the scope of the present data, it is possible that educative interventions implemented prior to conducting research trials might raise perceived and actual voluntariness within the future pool of research

participants. For example, this data suggests that community preparedness campaigns conducted prior to recruitment for clinical trials such as HIV vaccine trials need to emphasise the voluntariness of enrolment in the trial and the freedom to withdraw at any time. Informed consent procedures should also highlight the voluntary component of trial participation. This is underscored by findings from microbicide trials in South Africa and elsewhere that found that very few (less than 30%) participants recalled or understood key elements of the trial design (Ramjee et al., 2000). The present study has piloted a questionnaire, which, with refinements and formal validation, could be used to research more comprehensively rural and urban populations’ perceptions of research voluntariness by race, socio-economic status and gender.

A positive but complex finding of the current study was that approximately 50% of each racial group studied were willing to volunteer for participation in medical research, despite Black respondents’ significantly low perception of voluntariness of medical research participants in general. While this might represent a positive implication for respondents’ willingness to volunteer in future clinical trials (including HIV vaccine trials) in South Africa, this willingness to participate warrants further careful exploration, possibly as done by Halpern, Metzger, Berlin and Ubel (2001), who prospectively studied willingness to participate (WTP) in a hypothetical AIDS vaccine trial among 610 Philadelphia residents at high-risk for HIV infection. Significantly, they found that white race was also a predictor of enrolment, highlighting the concerns of the present study. Similar WTP research should be conducted in the public education phases of HIV vaccine trials in South Africa, with particular emphasis on evaluating the voluntariness dimension of participation.

Recommendations for future research

The existing literature on public perception of medical research is limited (Corbie-Smith et al., 1999; Swanson & Ward, 1995). Relatively few studies have been conducted abroad and none are evident in South Africa. Research investigating public opinion of participation in medical research across races in South Africa remains an essential area for future research. Research of this nature would provide a greater and more accurate awareness of the perceptions of prospective research participants.

Based on the current study, research exploring the effect of “awareness of abuses in medical research” on “perceived voluntariness” is recommended. Additionally, our finding that level of education plays a role in perceived voluntariness also deserves further research attention. Furthermore, research investigating the

relationship between public perception of medical research, willingness to volunteer for research trials, and actual volunteerism is suggested. The outcome measure would be entry into a trial. Establishing whether certain attitudes towards medical research predict willingness to volunteer one's self and actual volunteerism may further elucidate predisposing factors. These factors, in turn, could be incorporated into educative interventions throughout the trial. Other interventions and their impact on perceived voluntariness could include educational and advocacy tasks to offset low perceived voluntariness, such as: use of recruiters from the same cultural and racial background as prospective participants; sensitivity by recruiters to power differentials; ongoing education about all aspects of the trial; exposure to persons who have voluntarily withdrawn from trials; the creative use of media to emphasise voluntariness; the use of neutral ombudspersons and other structures such as Community Advisory Boards to assure voluntariness (Sumathipala & Siribaddana, 2003). Each of these would require further efficacy research with a number of outcome measures.

More specifically, the current study can be considered a pilot study of racial differences in public perceptions of voluntariness of medical research participants. The present results warrant validation of our instrument and the replication of the study on a larger scale, using a sample that is more representative of the South African population, in terms of gender ratios and rural/urban setting. Such work could contribute to empirical efforts to examine the construct of voluntariness in health research participation, in the long-term hope of reaching the goal of autonomous decision-making by health research participants as advocated by London (2002).

Acknowledgements

The statistical assistance and comments of Dr. B.D. Faulds are gratefully acknowledged. Useful comments were also made by Cathy Slack and anonymous reviewers. Research assistance from Katherine van Loon is also acknowledged. Partial financial support was received from the HIV/AIDS Vaccines Ethics Group (HAVEG), University of KwaZulu-Natal, Pietermaritzburg, South Africa <http://www.saavi.org.za/haveg.htm>

References

Agrawal, M. (2003). Voluntariness in clinical research at the end of life. *Journal of Pain and Symptom Management*, 25, S25–S32.

Axelsen, D. (2001). Race, gender, and medical experimentation: J. Marion Sims' surgery on slave women, 1845–1850. In

W. Teays, & L. Purdy (Eds.), *Bioethics, justice and health care* (pp. 224–230). Belmont, CA: Wadsworth.

Baldwin-Ragaven, L., de Gruchy, J., & London, L. (1999). *An ambulance of the wrong colour: Health professionals, human rights and ethics in South Africa*. Cape Town: University of Cape Town Press.

Baron, R. A., & Byrne, D. (1997). *Social psychology* (8th ed.). Englewood Cliffs: Prentice-Hall.

Beauchamp, T. L., & Childress, J. F. (2001). *Principles of biomedical ethics* (5th ed.). New York: Oxford University Press.

Benatar, S. R. (2001). Commentary: Justice and medical research: A global perspective. *British Medical Journal*, 15, 333–340.

Benatar, S. R. (2002). Reflections and recommendations on research ethics in developing countries. *Social Science & Medicine*, 54, 1131–1141.

Brackbill, Y., & Golden, L. (1979). Public opinion of subject participation in biomedical research: New views on altruism, perception of risk, and proxy consent. *Clinical Research*, 27, 14–28.

Bull, L. (2003). Hope and disappointment: An analysis of the VaxGen results. *HIV Vaccines and the Community*, 5, 1–2.

Cassileth, B., & Lusk, E. (1982). Attitudes toward clinical trials among patients and the public. *Journal of the American Medical Association*, 248, 968–970.

CIOMS (2002). *International ethical guidelines for biomedical research involving human subjects*. Geneva: Author.

Cohen, T. (1997, January 24). South Africa AIDS drug reviewed. *The Associated Press* [Online], (10 paragraphs). Available: <http://www.aegis.com/news/ap/1997/AP970121.html> [2001, July 8].

Corbie-Smith, G., Thomas, S. B., Williams, M. V., & Moody-Ayers, S. (1999). Attitudes and beliefs of African Americans toward participation in medical research. *Journal of General Internal Medicine*, 14, 537–546.

Dawson, C. R. (2000). *Public perceptions of the collection of human biological samples: Summary report* [Online]. Available: <http://www.mrc.ac.uk/publicperceptions.htm> [2001, September 18].

deCastro, L. D., & Sy, P. (2001). The UNAIDS guidance document: A statement against using people. *Developing World Bioethics*, 2, 135–141.

Dula, D. (1994). African American suspicion of the healthcare system is justified: What do we do about it? *Cambridge Quarterly of Healthcare Ethics*, 3, 347–357.

Emanuel, E. J., Wendler, D., & Grady, C. (2000). What makes clinical research ethical? *Journal of the American Medical Association*, 283, 2701–2711.

Emanuel, E. J., Wendler, D., Killen, J., & Grady, C. (2004). What makes clinical research in developing countries ethical? *The benchmarks of ethical research. Journal of Infectious Diseases*, 189, 930–937.

Fairchild, A. L., & Bayer, R. (1999). Uses and abuses of Tuskegee. *Science*, 284, 919.

Flaherty, M. P., Nelson, D., & Stephens, J. (2000). The body hunters: Overwhelming the watchdogs. *Washington Post*, December 18, p A01.

Folb, P. I. (1985). Clinical trials and human experimentation. In G. C. Oosthuizen, H. A. Shapiro, & S. A. Strauss (Eds.),

- Attitudes to clinical experimentation in South Africa* (pp. 11–16). Johannesburg: Hodder & Stoughton.
- Ganz, P. A. (1990). Clinical trials: Concerns of the patient and the public. *Cancer: Diagnosis, Treatment, Research*, 65, 2394–2399.
- Glantz, L. H., Annas, G. J., Grodin, M. A., & Mariner, W. K. (2001). Research in developing countries: Taking “benefit” seriously. In W. Teays, & L. Purdy (Eds.), *Bioethics, justice and health care* (pp. 261–267). Belmont, CA: Wadsworth.
- Gorelick, P. B., Harris, Y., Burnett, B., & Bonecutter, J. (1998). The recruitment triangle: Reasons why African Americans enroll, refuse to enroll, or voluntarily withdraw from a clinical trial. *Journal of the National Medical Association*, 90, 141–145.
- Guardian Newspapers. (1998, June 7). Observer investigation: British arms dealers linked to apartheid’s Brigadier death. *Guardian Newspapers* [Online], 31 paragraphs. Available: <http://home.global.co.za/~jrad/observer060798.html> [2001, July 8].
- Halpern, S. D., Metzger, D. S., Berlin, J. A., & Ubel, P. A. (2001). Who will enroll? Predicting participation in a phase II AIDS vaccine trial. *Journal of Acquired Immune Deficiency Syndromes*, 27, 281–288.
- IAVI (2003a). Ongoing trials in Africa. *HIV/AIDS Vax: An IAVI Report Bulletin*, 1, 1.
- IAVI (2003b). Clinical trials watch: Ongoing preventive trials of HIV vaccines. *IAVI Report*, 6, Special supplement.
- Isaakidis, P., Swinger, G. H., Pienaar, E., Volmink, J., & Ioannidis, J. P. A. (2002). Relation between burden of disease and randomized evidence in sub-Saharan Africa: survey of research. *British Medical Journal*, 324, 702.
- Jackson, H. (2002). *AIDS Africa: Continent in crisis*. Harare: SFAIDS.
- Jenkins, T. (1985). Human experimentation: Ethical considerations. In G. C. Oosthuizen, H. A. Shapiro, & S. A. Strauss (Eds.), *Attitudes to clinical experimentation in South Africa* (pp. 35–49). Johannesburg: Hodder & Stoughton.
- Kass, N. (1998). Gender and research. In J. P. Kahn, A. C. Mastroianni, & J. Sugarman (Eds.), *Beyond consent: Seeking justice in research*, (pp. 67–87). New York: Oxford University Press.
- Kemp, N., Skinner, E., & Toms, J. (1984). Randomised clinical trials of cancer treatment: A public opinion survey. *Clinical Oncology*, 10, 155–161.
- Kimmel, A. J. (1996). *Ethical issues in behavioral research*. Cambridge, Mass.: Blackwell.
- Lackey, D. P. (2001). Clinical trials in developing countries: A review of the moral issues. *Mount Sinai Journal of Medicine*, 68, 4–12.
- LaFraniere, S., Flaherty, M. P., & Stephens, J. (2000). The dilemma: Submit or suffer. ‘Uninformed consent’ is rising ethic of the drug test boom. *Washington Post*, December 19, pA01.
- Lederer, S. E. (1995). *Subjected to science: Human experimentation in America before the Second World War*. Baltimore: Johns Hopkins Press.
- Lindegger, G. C., Wassenaar, D. R., & Slack, C. M. (2001). HIV vaccine trials in South Africa: Some ethical considerations. *Grace & Truth*, 18(3), 20–30.
- London, L. (2002). Ethical oversight of public health research: Can rules and IRBs make a difference in developing countries? *American Journal of Public Health*, 92, 1079–1084.
- MacQueen, K. M., Abdool Karim, Q., & Sugarman, J. (2003). Ethics guidance for HIV prevention trials. *British Medical Journal*, 327, 340.
- Magardie, K. (2000, February 25). Disgraced Wits prof misled his patients. *The Mail & Guardian*. [Online], (16 paragraphs). Available: http://www.mg.co.za/mg/news/2000feb2/25feb-cancer_tests.html [2001, July 8].
- Makgoba, M. W., Solomon, N., & Tucker, T. J. (2002). The search for an HIV vaccine. *British Medical Journal*, 324, 211–213.
- Martin, D. C., Arnold, J. D., Zimmerman, T. F., & Richart, R. H. (1968). Human subjects in clinical research—a report of three studies. *New England Journal of Medicine*, 279, 1426–1431.
- McNeill, P. M. (1993). *The ethics and politics of human experimentation*. Cambridge: Cambridge University Press.
- Medical Research Council (2004). *Guidelines on ethics for HIV preventive vaccine research*. Tygerberg: Author (In press). (Available <http://www.sahealthinfo.org/ethics/book5.htm>)
- Nelson, R. M., & Merz, J. F. (2002). Voluntariness of consent for research: An empirical and conceptual review. *Medical Care*, 40, V69–80.
- Northington Gamble, V. (1997). Under the shadow of Tuskegee: African Americans and health care. *American Journal of Public Health*, 87, 1773–1778.
- Nuffield Council on Bioethics (2002). *The ethics of research related to healthcare in developing countries*. London: Author. (Available www.nuffield.bioethics.org).
- Ramjee, G., Morar, N. S., Alary, M., Mukenge-Tshibaka, L., Vuylsteke, B., Ettègne-Traoré, V., Chandeying, V., Abdool-Karim, S., & Van Damme, L. (2000). Challenges in the conduct of vaginal microbicide effectiveness trials in the developing world. *AIDS*, 14, 2553–2557.
- Rossel, P., & Holm, S. (1999). How does the public perceive the motives of medical researchers for doing research? *Bulletin of Medical Ethics*, 146, 16–17.
- Rugemalila, J. B., & Kilama, W. L. (2001). Proceedings of the seminar on health research ethics in Africa. *Acta Tropica*, 78, S1–S126.
- Savitt, T. L. (1982). The use of Blacks for medical experimentation and demonstration in the Old South. *Journal of Southern History*, XLVIII, 331–348.
- Schoofs, M. (2001, July 19). Tanzanian military helped company skirt drug regulations to test Virodene. *The Wall Street Journal*.
- Schüklenk, U. (2000). Protecting the vulnerable: Testing times for clinical research ethics. *Social Science & Medicine*, 51, 969–977.
- Skinner, L. J., Berry, K. K., Biro, M., & Jackson, T. (1991). Research ethicality: The perceptions of participants and participation willingness. *Current Psychology: Research and Reviews*, 10, 79–91.
- Slack, C., Lindegger, G., Vardas, E., Richter, L., Strode, A., & Wassenaar, D. (2000). Ethical issues in HIV vaccine trials in South Africa. *South African Journal of Science*, 96, 291–295.
- Slevin, M., Mossman, J., Bowling, A., Leonard, R., Steward, W., Harper, P., McIlmurray, M., & Thatcher, N. (1995). Volunteers or victims: Patients’ views of randomised cancer clinical trials. *Journal of Cancer*, 71, 1270–1274.

- Smith, C., & Nicodemus, A. (1999, March 19). More human guinea pigs for Virodene. *The Mail & Guardian*. [Online], (8 paragraphs). Available: <http://www.q.co.za/news/1999/9903/990319-virodene.htm> [2001, July 8].
- SPSS Inc. (1999). *SPSS for Windows (9.0.1)*.
- Stanley, B. H., & Guido, J. R. (1996). Informed consent: Psychological and empirical issues. In J. E. Sieber, & G. B. Melton (Eds.), *Research ethics: A psychological approach* (pp. 105–128). Lincoln: University of Nebraska Press.
- Stephens, J., & Flaherty, M. P. (2001). Regulation of overseas drug trials is pursued. *Washington Post*, August 4, p. A05.
- Sumathipala, A., & Siribaddana, S. (2003). *Research ethics from a developing world perspective*. Colombo: Vijitha Publications.
- Swanson, G. M., & Ward, A. J. (1995). Recruiting minorities into clinical trials: Toward a participant-friendly system. *Journal of the National Cancer Institute*, *87*, 1747–1759.
- Teays, W., & Purdy, L. (Eds.). (2001). *Bioethics, justice and health care*. Belmont CA: Wadsworth.
- Tollman, S. M. (2001). What are the effects of the fifth revision of the declaration of Helsinki? *British Medical Journal*, *323*, 1417–1423.
- UNAIDS. (2000). *Ethical considerations in HIV preventive vaccine research. UNAIDS guidance document*. Geneva.
- Vermaak, V. (2000). Death by prescription. *Carte Blanche*. M-Net TV Broadcast, October 22.
- Washburn, J. (2001). Undue influence. *The American Prospect*, *12*, 127–135.
- Welsh, K. A., Ballard, E., Nash, F., Raiford, K., & Harrell, L. (1994). Issues affecting minority participation in research studies of alzheimer disease. *Alzheimer Disease and Associated Disorders*, *8*, 38–48.
- Wetherell, M. (Ed.). (1996). *Identities, groups and social issues*. London: Sage Publications.
- Whiteside, A., & Sunter, C. (2000). *AIDS: The challenge for South Africa*. Cape Town: Human & Rosseau.
- Winerip, M. (2000). *The global Willowbrook*, [Online]. Available: <http://www.nytimes.com/library/magazine/home/20000116mag-winerip7.html> [2001, August 17].