

1985

PERSONALITY AND DEMOGRAPHIC  
CORRELATES OF ATTITUDES TOWARDS  
NUCLEAR WAR AND NUCLEAR WEAPONS.

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PERSONALITY AND DEMOGRAPHIC CORRELATES OF  
ATTITUDES TOWARDS NUCLEAR WAR AND NUCLEAR WEAPONS

by

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B.A. Queens College, 1976

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A Dissertation  
Submitted to the Faculty of Graduate Studies  
through the Department of Psychology  
in Partial Fulfillment of the  
Requirements for the Degree  
of Doctor of Philosophy at  
the University of Windsor

Windsor, Ontario, Canada  
1985

## ABSTRACT

A measure of nuclear war/weapons attitudes was developed based on factor analyses of the responses of 563 American and Canadian college students to a pool of 118 nuclear war-/weapons-related items. The resulting 60-item measure, the Nuclear Weapons Orientation Measure (NWOM), composed of 11 separate attitudes scales, was administered along with personality and demographic variables to 273 American students. Females were found to differ from males in favoring unilateral reductions in nuclear weapons to a greater extent, viewing nuclear war as more likely, and viewing the potential consequences from nuclear war as less manageable. Among the findings applying for both sexes: perceptions of the Soviets were related to defense mechanisms; sex-role orientation was related to attitudes about bilateral nuclear weapons reductions; religious attitudes were found to be related to attitudes about preparing for nuclear war, and to worry about nuclear war; locus of control was related to perceptions about the likelihood of nuclear war, and to beliefs about the safety of sparsely populated areas during nuclear war. A wide variety of differences between the sexes in correlates of nuclear war attitudes was also found.

## ACKNOWLEDGEMENTS

I am indebted to many people who gave me a wide variety of forms of assistance during the course of this investigation.

I want to thank first Dr. William L. Libby, Jr., the chairman of my dissertation committee, for his expert guidance and consistent availability throughout the course of my dissertation. I feel that I have been very fortunate to have been able to benefit from Dr. Libby's intelligence, his openness to new research topics and new viewpoints, and his wide experience in multivariate research. I also want to thank sincerely the other members of my dissertation committee from the psychology department at the University of Windsor, Dr. William D. G. Balance, and Dr. John LaGaipa, for their thoughtful, astute, and extremely useful comments and suggestions during the proposal, and during the final stage of this project. Also, I want to express my gratitude for participation on my dissertation committee as "external examiner" by Dr. Michael A. Milburn from the Department of Psychology at the University of Massachusetts/Boston - I have appreciated greatly his careful critique and comments on my research, as well as the perspective he contributed as someone who has actively been involved in research in the area of attitudes about nuclear war and nuclear weapons. Additionally, I want to thank Dr. Adolph Ehrentraut, from the sociology department of the University of Windsor, for his comments on and reactions to this investigation during my oral defense.

I also want to thank: Dr. Helen Field, Dr. Lora Simon, Dr. Larry Leavitt, Dr. Rodney Dube, Mr. Robert Duncan, and Mr. Don Margulis, all from Holyoke Community College; Dr. Henry Paar and Dr. John Cox, of Springfield College; and the teaching assistants in Introduction to Psychology at the University of Windsor during the Fall of 1984; for their graciously allowing me to approach their students about participation in this research, and for their other efforts which facilitated my collecting these data.

Also, I want to express my gratitude to Mr. Stephen R. Hanmer, Jr., of the Office of the Secretary of Defense, to Mr. Matt Murphy of the Arms Control and Disarmament Agency, and to Mr. Donald Doumakes of the Socialist Party, for their commenting on the completeness and sources of bias in my list of open-ended questions about nuclear war/weapons attitudes; and to Mrs. Trina Hosmer, from the Computing Center at the University of Massachusetts/Amherst, for her extensive help with technical aspects of the data analysis.

Additionally, but very importantly, I want to thank all of the people who provided data for this study: the people from the Springfield area "general population" group (of Stage I of this research), the people from the Western Massachusetts anti-nuclear movement, the people from "Common Sense" in Amherst, MA, the students from the Peacemakers club and from the Republican club of the University of Massachusetts, all of whom allowed me to interview them over the phone about their attitudes about nuclear war and nuclear weapons; and the students from the University of Windsor,

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from Holyoke Community College, and from Springfield College, who responded to the paper-and-pencil measures used in this study.

I also want to express my appreciation of my parents, for all the help and support they have extended to me throughout my schooling. Lastly, I want to deeply and affectionately express my gratitude to my wife, Jill, for her constant support throughout this project, and to let her know that I appreciate the sacrifices and the postponement of goals that she made in order for me to complete my degree. My completion of this project represents an accomplishment by us both.

*not included*

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## CHAPTER I

### INTRODUCTION

This study examines attitudes, beliefs and expectations relating to nuclear weapons and nuclear war - their measurement, and some hypotheses concerning their antecedents and correlates.

The potential for use of nuclear weapons constitutes the gravest possible threat to the continuation of civilization, and possibly, to the continuation of our species as well (for scientific reasoning and evidence in support of this latter assertion, see Turco, Toon, Ackerman, Pollack and Sagan, 1984). To judge from the substance of the findings of public opinion surveys (see literature review below), as well as the general increase in nuclear war-/weapons-related surveys (as documented by Kramer, Kalick and Milburn, 1983) and the increased mass media attention to this issue, our society as a whole has become much more aware of the extraordinary danger that these weapons represent. Unfortunately, adaptive solutions that might significantly reduce this danger do not appear to be forthcoming; a number of writers suggest, instead, that the course the West is on is increasing the danger (Barash and Lipton, 1982; Lifton and Falk, 1982; Schell, 1982; Sagan, 1983).

The whole area of the psychological impact of, and psychological construals of, nuclear weapons and nuclear war has received

astonishingly little attention in the way of research from the social sciences (as a search for material on this topic prior to 1983 in either Psychological Abstracts or Sociological Abstracts would indicate). One cannot help but wonder: how could such a major and vital topic of research go neglected, for all intents and purposes (apart from some scattered studies, and some survey research) for so long? One cannot legitimately argue that some manner of lack of respectability of the topic has kept researchers away from it. As someone who has reviewed the literature concerning the psychological research on astrology (see Rockowitz, 1980) as well as the research on nuclear war/weapons attitudes, it appears to this author that more research of a psychological nature may have been done to date in the area of astrology! One can speculate that researchers may have been caught up in a society-wide process of denial as regards prospects, implications and consequences of nuclear weapons and nuclear war, reflective of the psychic numbing that Lifton (1982) discusses. Or, a related explanation might be found in the idea of resistance to research on death - if researchers in the social sciences have only recently begun to focus on the psychological aspects of the death of individuals, how much more difficult, and conceivably more threatening, to investigate a topic that relates to the possible death of humanity as a species.

It is plausible that a bi-directional process of influence exists concerning psychological material relating to nuclear weapons and nuclear war. This would include the hypotheses of Lifton (1968,

1982), among others, that the implications of nuclear weapons, and the prospect of nuclear war, have pronounced and far-reaching effects on our lives, even if the material is heavily defended against psychologically. However, these hypotheses encompass only one direction of influence, the influence of the objective situation of the existence of nuclear weapons and the threat of nuclear war upon individuals or groups. The research of the current investigation has assumed, to a large extent, the reverse directionality - the influence of the individual's personality, needs and general attitudes about life on his/her construal of the prospect of nuclear war and the implications of nuclear weapons. The basis for this hypothesis lies in the ambiguity and indefiniteness of information relating to nuclear weapons and nuclear war. For example, there are no objective answers to such basic and important questions as: How likely is nuclear war? How might it happen? When might it happen? What are the attitudes and intentions of adversary countries possessing nuclear weapons? What would the aftermath of a nuclear war be like? How many would survive, and for how long? The point is, since questions like these require at least provisional answers in order to reduce anxiety on an individual level, and since objective and relatively certain answers do not exist, the answers provided by any given individual would appear susceptible to being influenced by such factors (among others) as his/her particular personality, defensive structure, and outlook on life.

The current study had two primary goals: to develop a psy-

chometrically adequate instrument for measuring a variety of psychological dimensions relating to nuclear weapons and nuclear war; and to explore the relationships of personality variables (including defense mechanisms, locus of control, life satisfaction, sex-role orientation, and religious and political variables) and demographic variables to construals of nuclear weapons and nuclear war.



## Literature Review

### Attitude Polls

One of the earliest opinion polls concerning attitudes about nuclear weapons measured attitudes about dropping the atomic bomb on Hiroshima and Nagasaki in 1945. A poll conducted by Fortune in September, 1945, obtained results showing that approximately 20 per cent of the respondents would have preferred the bomb not to have been used at all, or for it to have been used first in unpopulated areas. Approximately half approved of the U.S. bombing cities in the manner that it did, and approximately one-quarter favored using many more atomic bombs before Japan had a chance to surrender. A similar poll conducted by the National Opinion Research Center (details of which were reported in Kramer, Kalick and Milburn, 1983) found that two-thirds of the sample supported the manner in which the U.S. employed the atomic bomb against Japan. Kramer et al. (1983), whose review article on attitudes towards nuclear war and nuclear weapons included an examination of some surveys on attitudes on the atomic bombing of Japan, concluded that support for this action on the part of the U.S. has remained stable since its occurrence 40 years ago.

From the inception of the atomic bomb's existence, respondents have been asked about their assessment of the probability of nuclear war. The apparent increase in the frequency with which this question has been asked within the last ten years would seem to parallel the general increase in nuclear war-/weapons-related polls (a trend described by Kramer et al., 1983).

DeBoer (1981) described four polls that were done by the Canadian Institute of Public Opinion between 1971 and 1980 in which Canadian respondents were asked if the chances of nuclear war breaking out were greater or less great "than they were ten years ago." The data suggested an increasing apprehension about the possibility of nuclear war over time; nearly one-fifth of the sample indicated that chances for nuclear war were greater in 1971 than in 1961, whereas three-fifth of the sample thought that the chances for nuclear war were greater in 1980 than they were in 1970. Responses in 1975 and in 1979 to this question exhibited intermediate values in this trend - one-third of the sample in 1975, and one-half in 1979, expressed the belief that chances for nuclear war were greater than they had been ten years prior.

On several occasions from 1981 to 1983, the Gallup Organization polled respondents on the question: "How likely do you think we are to get into a nuclear war within the next ten years - very likely, fairly likely, fairly unlikely, or very unlikely?" During this two-year period, overall responses to this question were fairly stable, with roughly half of the sample indicating nuclear war was "very or fairly likely," and with the remaining half indicating it was "very or fairly unlikely." In both of the polls which were published in the Gallup Report with breakdowns by subgroup responses, the following generalizations were supported: women view nuclear war as more likely than men do; non-whites view it as more likely than whites; those with a high school education or less

view it as more likely than do college graduates; democrats view it as more likely than republicans; manual workers and those not in the work force view it as more likely than professional and business workers; and those reporting an income of 20,000 dollars or less view it as more likely than those making 30,000 dollars a year or more. These data suggest that variables relating to socioeconomic status (among others) play an important role in nuclear war/weapons attitudes. Table 1 shows the percentages obtained on these variables for both Gallup polls.

Other Gallup surveys were performed (Gallup Report, Jan., 1982 and Jan., 1983) in which a different, but clearly related question was asked, concerning the chances of world war within the next ten years. Females, non-whites, the high-school educated, democrats, and lower-income respondents viewed world war as more likely than their respective counterparts. Moreover, in response to this question, younger people tended to view world war as more likely than did older respondents. These results, having recurred in a very similar manner in a number of polls taken at different times, appear to be both consistent and robust. Possibly, different intervening variables for each subgroup (or for clusters of subgroups) are responsible for these data. Or, perhaps it is more likely that these findings can be explained by intervening variables such as satisfaction with life - perhaps nuclear war expecters as a group may have a lower satisfaction with life, which expresses itself in pessimism regarding an event like nuclear war, for which the

TABLE 1

Representation of Partial Results from Gallup Polls on Expectations for Nuclear War - Subgroups showing Significant Intragroup Differences\*

Question: How likely do you think we are to get into a nuclear war within the next 10 years: very likely, fairly likely, fairly unlikely, or very unlikely?

Subgroup	11/83: very or fairly likely	10/81: very or fairly likely
National	40	47
Sex		
Male	33	42
Female	46	52
Race		
White	37	36
Non-White	57	49
Education		
College Grad.	29	28
High School Grad.	43	51
Politics		
Republican	24	37
Democrat	47	51
Independent	41	50
Occupation		
Prof'l and Bus.	29	36
Manual	47	51
Non-labor force	44	49
Income		
40K	30	39 (25+K)**
30K-39K	29	
10K-19K	42	56 (LT 20K)
Under 10K	53	

\*The largest differences between subgroups in each category were significant at the .05 level, for both polls.

\*\*The income categories for the two polls were somewhat different.

probability, as well as the interpretation of the current nuclear weapons situation, is ambiguous. In other words, according to this idea, nuclear war expecters would be projecting their pessimism onto the ambiguous prospect of nuclear war. A similar mechanism, in the opposite direction, would be operative for nuclear war non-expecters -- their denial of the prospect may be a function of their satisfaction with life, and hence of their optimism.

Another major area relating to nuclear war/weapons attitudes, both directly and indirectly, concerns attitudes towards the Soviet Union. One group of attitudes in this area concerns perceptions of the motives and attitudes of Soviet leaders towards the United States in general, and as regards nuclear weapons in particular. In an article describing poll results obtained by the Harris Organization during 1981, Kalven (1982) reported the following: 2/3 of the sample believed that there is a likelihood that the Soviet Union will attack the United States over the next 10 years, and that they (the Soviet Union) would not hesitate to use nuclear weapons if they were desperate enough; half of the sample viewed the Soviet Union as an outright enemy; 4/5 indicated their belief that the Soviets only want agreements whereby they can gain an advantage; and 3/4 were sceptical that the Soviets would keep their end of arms agreements. This latter issue, relating to perceived trustworthiness of Soviet leaders, has been examined by a number of different sources. Smith (1983) reported results from four NBC/AP polls done during 1978 and 1979, during which the question of Soviet compliance with agreements

aimed at "relaxing tensions" between themselves and the United States was asked. Roughly 2/3 of the respondents, in all four polls, did not believe that the Soviets could be trusted to live up to such agreements. Similarly, in a poll for Time Magazine (December 28, 1981) conducted by Yankelovich, Skelly and White, Inc., again, approximately 2/3 indicated a belief that Soviet leaders would not follow through on their portion of an arms control agreement. And again, in a poll by the Gallup Organization performed in May, 1981, 3/5 of the respondents did not believe that the Soviets would comply with an agreement to destroy all current nuclear weapons (assuming they made such an agreement). There was very little variability between subgroups on these question, although there was some limited evidence that scepticism concerning Soviet compliance to an agreement to build no more nuclear weapons may show an inverse relationship with income and education, and a direct relationship with age.

Another group of attitudes in this area that polls have explored concerns the relative nuclear strength of the U.S. and the Soviet Union. Smith (1983) reported results from Roper polls between 1977 and 1982 relating to the question of the perceived relative nuclear strength of these two countries. These polls suggest some tendency over that time period of the U.S. being perceived as gradually losing its position of nuclear superiority, with an increasing tendency for the U.S. to be seen as behind in these weapons, and less tendency to view it as even or ahead in these weapons. According to these polls, in April, 1982, about 1/10 of the respondents

indicated that the U.S. was ahead of the U.S.S.R. in nuclear strength, 1/3 indicated that they were about even (down from 2/5 in 1977), and 2/5 of the respondents indicated that the U.S. was behind (an increase from 1/3 of the respondents who held this view in 1977). Other recent polls exhibited similar results as regards perceived U.S. nuclear strength relative to the Soviet Union (Gallup polls of March, 1983, November, 1982 and May, 1982).

Another type of question in this area involving attitudes towards the Soviet Union concerns whether the respondent believes that fighting a full-scale nuclear war is preferable to Soviet domination. A survey by the Gallup Organization in 1961, reported in Public Opinion (August/September 1983) asked respondents how they would decide if they had to choose between living under communist rule or full-scale nuclear war. At the time, 80% indicated nuclear war was preferable, 6% indicated domination by the Soviet Union was preferable, and the remainder were undecided. A very similar question was posed in a 1983 poll by the Center for Policy Studies at the University of Massachusetts (reported and discussed briefly in Human Events of April 23, 1983). The results from this poll indicated that slightly over half would choose nuclear war (rather than the 4/5 that chose this in 1961), and that 2/5 (rather than 1/20) would choose Soviet domination. It is difficult to say to what extent these differences in findings reflect methodological differences in the two studies. However, it is certainly possible that there has been a genuine attitude shift, involving a lesser

willingness to actually fight a nuclear war, over the 20-plus years between these two studies.

A similar question has been asked, although much more ambiguously, in a survey by the Los Angeles Times in March, 1982 (reported in Public Opinion, April/May 1983). The question to respondents was: "Would you be willing to risk the destruction of the United States rather than be dominated by the Russians, or not?" Clearly, these polls differed from the previous two cited above in that no clear choice between nuclear war and Soviet domination is given, and only the "risk" of the destruction of the U.S. is mentioned as an alternative. In both of these polls, approximately 2/3 of the respondents chose "risking destruction of the U.S.," with 1/3 opting for Soviet domination.

Still another group of questions that have been asked in polls concerns nuclear arms control agreements, policy and proposals. One type of question has focused on attitudes about a nuclear "freeze," or halting of the production of nuclear weapons. Overall, there appears to be clear support for a bilateral nuclear freeze (one that is verifiable and is mutually agreed upon with the Soviet Union), and there appears to be considerable ambivalence about the idea of a unilateral nuclear freeze (which would involve the U.S. freezing production of nuclear weapons regardless of the Soviet Union's willingness to do so).

In May, 1981, November, 1982 and March, 1983, the Gallup organization conducted surveys on attitudes towards a bilateral nu-



clear freeze (reported in Gallup Report of May, 1981, January, 1983 and May, 1983, respectively). In all of these surveys, approximately 70% favored such a freeze, and 20% of the respondents opposed it. Harris polls (see Kalven, 1982), as well as voter response to referenda during the 1982 elections (see Time Magazine, Nov. 15, 1982) reflected similar results. On examination of the breakdown by subgroups provided by the Gallup polls on this issue (mentioned above), it becomes clear that there is widespread support for this issue across the various groups of our society - there were no significant differences in support of the bilateral freeze on the basis of sex, race, religion, or political affiliation. These results can be compared to those from polls that explore attitudes towards a unilateral nuclear weapons reduction. A Gallup poll of September, 1982 (reported in Gallup Report, 11/82) asked respondents whether they favored a freeze on the production of nuclear weapons "whether the Soviet Union does so or not." The responses to this were almost evenly divided (45% for, 55% against), with non-whites being more favorable than whites (3/5 of black responses vs. 2/5 of white responses), lower income (less than 10K) being more favorable than higher income (20K+), and with democrats being more favorable than republicans ( $\frac{1}{2}$  of democrats versus  $\frac{1}{3}$  of republicans). Considering these findings in conjunction with the findings regarding subgroup expectations of nuclear war, perhaps those groups viewing nuclear war as more probable are, for that reason, more likely to favor

unilateral attempts at nuclear arms control. Harris (1982 - reported in Kalven, 1982) asked a somewhat more extremely worded question: "Would you favor or oppose the U.S. deciding to gradually dismantle (underline mine) our nuclear weapons before getting an agreement from other countries to do the same?" 4/5 of the respondents opposed this idea, with 1/6 favoring it. These figures are comparable to those from three NBC/AP polls, the results from which were reported in Smith, 1983, which were done during the years 1981 and 1982. Respondents were asked: "Do you think the U.S. should move towards nuclear disarmament on its own...only if the Soviet Union agrees to disarm as well...or don't you think the U.S. should move towards nuclear disarmament at all?" In all three polls, approximately 1/7 of the sample favored unilateral disarmament, 50% favored bilateral disarmament, and approximately 25% opposed any disarmament of nuclear weapons at all. These figures are similar to Harris's 80% figures for respondents opposed to unilateral dismantlement mentioned above. However, the 50% figure for respondents favoring bilateral disarmament does not agree with the approximately 2/3 to 3/4 popular support that has been typical in polls measuring attitudes towards a bilateral nuclear freeze or arms reduction. Perhaps the explanation for this is that the word "disarmament" implies total disarmament, which may be viewed as too dangerous given the perceived untrustworthiness of the Soviet Union (discussed above). Additional support for the idea that the U.S. public has very mixed attitudes regarding total nuclear disarmament can be seen in a May, 1981 Gallup poll (reported in the May, 1981 Gallup Report) in which

respondents were asked if they would favor an agreement between the U.S. and the Soviet Union "to destroy all existing nuclear weapons that have been built." Approximately half of the respondents favored this idea and half opposed it, with no marked subgroup variability (e.g., party affiliation, race, sex, etc.) on this issue. Again, these results can be compared to support for a bilateral arms reduction, for which support is quite similar to that obtained for a bilateral nuclear freeze. Out of ten separate NBC/AP polls performed between 1978 and 1980 inquiring about attitudes towards an agreement to limit nuclear weapons between the U.S. and the Soviet Union (results from which were reported in Smith, 1983), virtually all obtained approval of such a measure from 3/4 of the sample, with approximately 20% disapproving. A Gallup poll of November, 1982 (reported in the Gallup Report of January, 1983) which investigated attitudes about a 50% bilateral reduction of nuclear weapons obtained very similar results. As with the other bilaterally-oriented proposals for nuclear weapons limitation, there was no marked subgroup variability in the Gallup poll on this issue.

Some questions that have been asked in surveys attempt to measure the extent to which the threat of nuclear war has permeated the respondent's thoughts or life in some way. Laulicht (1971) reported statistics from a survey done in November, 1961 by the Gallup Organization, which asked respondents whether fears about nuclear war had affected their outlook on life or plans for the future. In this study, approximately 1/6 of the sample felt that it had influenced

their outlook or plans, whereas the remainder did not. Kramer, Kalick and Milburn (1983) reported figures from some polls investigating worry about nuclear war. In one of these, a Gallup poll performed in June, 1961, respondents were asked how worried they were about the possibility of nuclear war. Approximately 3/5 indicated they were very or fairly worried, whereas the remaining 2/5 indicated they were not at all worried. Kramer et al. (1983) also reported the results of a 1983 LA Times poll which asked respondents about the frequency with which they worried about the possibility of nuclear war. Results from this question (which, semantically, is quite different from "How worried are you?") indicated that respondents were approximately split evenly three ways, into worrying often or a great deal, seldom worry, and not worrying at all. Perhaps the conclusion to be drawn from these studies (assuming we would obtain similar results today) is that the U.S. population is worried about the possibility of nuclear war (and, of course, there is other evidence for this in the form of support for bilateral arms reduction measures), but that, on a day to day basis, it does not affect their life or decisions directly, and they do not think about it much.

Still other questions that have been asked concern issues relating to survival of nuclear war. A 3/82 Gallup/Newsweek poll found that approximately half of the respondents thought their chances of surviving nuclear war were 50-50 or better, with the other half characterizing their survival chances as "poor." However, in this poll, as in some other Gallup polls (of 2/63, reported in Kramer et al., 1983, and one of 8/61, the results of which were displayed in

Laulicht, 1971) only a small minority, less than 10%, characterized their chances of survival during nuclear war as "good." Laulicht (1971) reported results from a 5/58 Gallup poll in which respondents were asked their opinion about the percentage of people that would survive a nuclear war. 3/5 of the respondents indicated that they anticipated that 50% or less of the population would survive, and about 1/10 thought that 60% or better of the population would survive, with almost 1/3 of the respondents answering "don't know." As a tentative hypothesis from these figures, perhaps a minority of the population (around 10%?) minimizes the danger and effects from nuclear weapons. Just as there is a subgroup that is extremely concerned about the danger and effects of nuclear weapons (among them, perhaps, the supporters of unilateral disarmament) so there would seem to be a group which downplays (relatively speaking) the destructive potential of these weapons.

Another related question concerns attitudes about actually surviving a nuclear war. A poll of Iowans done by the Des Moines Register in May, 1982, asked respondents: "Would you want to be among the survivors of a nuclear war, or not?". 3/5 of the respondents indicated that they did not want to be among the survivors, with older respondents choosing death much more frequently than younger respondents, and with women choosing death much more frequently than men.

A very recent piece of survey-style research, yet perhaps the most comprehensive in the range of information from previous surveys that it integrates, and in the conclusions that it draws, was per-

formed by the Public Agenda Foundation (1984). On the basis of survey research performed specifically for this study (in May, 1985 on 505 American adults), as well as on the basis of a review of past research, it was concluded that:

- The public's perception of the danger and immediacy of the possibility of nuclear war has increased markedly since the atomic bomb was developed, and has increased particularly sharply over the last decade.
- The American public is roughly in consensus that nuclear war would be "suicidal" and its consequences unmanageable; and that nuclear weapons can't be abolished, but that nuclear superiority over the Soviet Union is not something the U.S. can realistically achieve for any prolonged period of time.
- While there is "consensus" (this was the PAF's term) that the Soviets are adversaries and that communism is a system fundamentally different from that in existence in the U.S., there is conflict among the public about the extent and nature of the threat from the Soviets, over the conditions under which the U.S. should negotiate arms reductions with the Soviet Union, over how the U.S. should deal with Soviet expansionism, and over the prospects for long-term relations with the Soviet Union.
- Experts in strategic defense tend to agree among themselves that nuclear war is unlikely, that deterrence using nuclear

weapons is unavoidable, and that nuclear weapons issues between the superpowers reflect political rivalries; these views differ from those of the general public. Strategic experts and the general public are in agreement that the Soviet Union is hostile to the U.S.

This PAF study also described, in very general terms, a "cluster analysis" that had been done on public attitudes, on the basis of which it was suggested that the following four variables underlay public attitudes on nuclear war and nuclear weapons:

- "the tendency to minimize or stress the threat of nuclear war;
  - the presence or absence of ideological animosity toward the Soviet Union;
  - the favoring of an assertive or a conciliatory policy towards the Soviets; and
  - the inclination to see the conflict between the U.S. and the U.S.S.R. in religious or in pragmatic terms"
- (the Public Agenda Foundation, 1984, p. 38).

Research examining the Relationship between Psychological Variables and Nuclear War/Weapons Attitudes

Tyler and McGraw (1983) investigated variables relating to two types of behavioral reactions to the threat of nuclear: anti-nuclear activism, and survivalist activity (i.e., oriented to surviving nuclear war). Subjects for their study included members of an

activist anti-nuclear group, members of a survivalist group, and members of the general population. The bulk of their analyses was based upon the pooling of the data from these disparate groups together, and examining the relationship between independent variables (among which were attribution, locus of control, and perceived risk) and the dependent variables, based on responses to questions, of "prevention behavior," "survival behavior," and "anti-nuclear policy support." Their findings included the following: prevention-of-nuclear-war behaviors and anti-nuclear policy advocacy were positively related to each other, but both were negatively related to survivalist activity; correspondingly, belief that nuclear war is survivable was negatively related to the belief that it is preventable; subjects who felt politically efficacious (i.e., that they were capable of political influence) were more likely to believe that nuclear war was preventable; locus of control was positively related to belief in the preventability of nuclear war, but showed no relationship to beliefs about its survivability; demographic variables and general political orientation were related to behavioral responses to the threat of nuclear war, with liberal political orientation, and higher income and education being related to prevention activities, with the reverse pattern holding for survivalist activities. Both the anti-nuclear group and the survivalist group believed that nuclear war was more likely than did the general public, but the anti-nuclear group indicated that they were significantly more worried than either the general public or



members of the survivalist group (these latter two groups did not differ significantly from each other as regards worry about the prospect of nuclear war). Also, the authors found that attribution of moral responsibility for a future nuclear war and for its prevention to citizens was strongly related to nuclear prevention behaviors. Tyler and McGraw (1983) acknowledged that their investigation must be viewed as "exploratory" (and thus that their results must be viewed as merely tentative and suggestive). This is the case, both because they pooled the data from all three groups (thus making generalizability untenable), and because there may have been sampling bias operating as regards which members of the anti-nuclear and survivalist groups participated in this research - of the members of these groups (who were contacted by mail), only 62% of the anti-nuclear group, and 28% of the survivalist group, responded.

Fiske, Pratto and Pavelchak (1983) investigated the relationship between "standard predictors" (general political activity, nuclear arms control-related attitudes, salience of nuclear issues, and beliefs regarding plausibility of nuclear war), nuclear war-related imagery (image in the sense of cognitive representation or schema), and anti-nuclear behavior. Subjects were contacted by phone, and there was some evidence that the sample was biased in the direction of being more "politically knowledgeable and interested" (as the authors put it) than average. Fiske et al. found that most of the images concerning nuclear war and its aftermath were abstract rather than concrete, but that concrete images had a significant (al-

though modest) relationship to anti-nuclear activity. The best predictor for anti-nuclear activity to emerge from this study was general political activity ( $r=.40$ ). Fiske et al. found a modest but significant inverse correlation between anti-nuclear activity and attitudes about the inevitability of nuclear war and the plausibility of a limited nuclear war. This is somewhat similar to the findings of Tyler and McGraw (1983, discussed above) - in their study, the anti-nuclear group did not believe nuclear war was inevitable, and those that believed in its inevitability were more likely to be involved in survivalist behaviors. Fiske et al. found no relationship between the degree to which nuclear images were affect-laden and anti-nuclear activity, or between image availability (measured by latency of response after the subject was asked to respond with images) and anti-nuclear activity. This contrasts with Tyler and McGraw's (1983) finding of a relationship between worry about the prospect of nuclear war and anti-nuclear behavior, but perhaps this can be attributed to the marked differences in the way this variable was measured in the two studies.

## Objectives of the Present Study

The present study had two main objectives: construction of an instrument for measuring a wide range of attitudes, beliefs and expectations about nuclear war and nuclear weapons; and the exploration of hypotheses relating attitudes and beliefs about nuclear war and nuclear weapons to a number of personality and demographic variables.

### Construction of the Nuclear Weapons Orientation Measure (NWOM)

See Methods section below.

### Hypotheses\*

The variables of sex-role identity, locus of control and life satisfaction are hypothesized to play a role in the empirical finding that women, non-whites and those with lower income and education perceive the possibility of nuclear war within the next ten years as more likely than do their respective counterparts. An assumption which influenced the selection of these variables is that subjective assessment of the probability of nuclear war is based upon the evaluation of ambiguous factors (e.g., the competence of the major powers to prevent nuclear war should a major conflict arise among them, the plausibility of scenarios that could set off nuclear war), and that due to this ambiguity, a given person's

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\*These hypotheses were drafted in general terms before any data were collected, but were related specifically to the factor scales of the Nuclear Weapons Orientation Measure (see Chapter III) after its factor structure was determined, but before any data relating it to personality or demographic variables were analyzed.

probability assessment may be influenced by personality variables that affect his or her general outlook on and attitudes about self, others and the world in general. In other words, due to the vagueness and uncertainty of the prospect, the assessment by the individual of the probability of nuclear war is hypothesized to be mediated by a consistency mechanism which may serve to align nuclear war expectations (and perhaps, related attitudes) with significant orientations of the personality (such personality orientations as, in the present study, sex-role identity, locus of control, and life satisfaction).

Another hypothesis that is examined, bearing similarities to the one above, concerns the possibility that the defense mechanisms employed habitually and characteristically by a person will influence his or her attitudes and beliefs concerning nuclear war and nuclear weapons - again, this effect may operate owing to the vagueness and complexity that stimuli relating to nuclear war and nuclear weapons involve, as well as to affect-eliciting properties of these stimuli.

Sex-Role Orientation. Differences between the personalities of males and females have been characterized broadly as being distinguishable by the trait constellations of agency (involving instrumental, self-originated activity, self-assertion and self-protectiveness) and of communion (involving expressiveness, selflessness, a need for identification with others, and nurturance) (Bakan, 1966; Parsons and Bales, 1955). The agency/communion dis-

inction also encompasses the stereotype that males and females differ in their ability to acknowledge feelings such as fear, worry, powerlessness and sadness. Spence, Helmreich and Stapp (1974) have developed scales which reliably differentiate the sexes along the agency/communion dimensions, and have characterized the various patterns of scoring on these scales with sex-role-related terms that are in common use: subjects scoring high on "agency" and low on "communion" are labeled masculine; subjects scoring high on communion and low on agency are labeled feminine; those scoring high on both scales are labeled androgenous; and those scoring low on both scales are labeled undifferentiated.

It is hypothesized that "masculine" subjects will differ from "feminine" subjects in their attitudes on a variety of issues relating to nuclear weapons and nuclear war. Specifically, they are expected to differ in the following ways:

- "Masculine" subjects (not exclusively males), perceiving nuclear weapons as serving a primarily self-protective function, will favor the maintainance of nuclear weapons stockpiles at current or greater levels; whereas "feminine" subjects (not exclusively females), perceiving nuclear weapons primarily as a threat to life in general, will be more favorable to reductions in nuclear weapons.
- "Masculine" subjects may project their own agentic style onto the Soviet Union, and therefore view the Soviets as

more untrustworthy than do their "feminine" counterparts (who may in turn project their communion orientation onto the Soviets, and view them as more willing to negotiate in earnest).

- "Masculine" subjects, because of their agentic style, will:
  - view themselves as more able to contribute to the prevention of nuclear war, and
  - view preparations to survive as more worthwhile, than their "feminine" counterparts.
- "Feminine" subjects, owing to their hypothesized greater ability to acknowledge negative feelings (fear, helplessness, etc.) are expected to be:
  - more worried about nuclear war,
  - perceive nuclear war as more likely, and
  - expect the consequences of nuclear war to be more potentially damaging, than their "masculine" counterparts.

Androgenous and undifferentiated groups are predicted to differ perceptibly from the "masculine" and "feminine" groups, and from each other. Spence and Helmreich (1979) report that, of the four patterns of agency/communion scores on the Personal Attributes Questionnaire, androgenous individuals have consistently scored highest, and undifferentiated individuals lowest, on measures of self-esteem and social competence.

Locus of Control. As indicated in the literature review above, those groups that have the greatest anticipation of nuclear war within ten years included females, non-whites, democrats, lower education and lower income groups. With the exception of democrats, these groups also tend to score in an external direction on measures of locus of control, relative to their respective counterparts (Rotter, 1966; Joe, 1971; Lefcourt, 1976). For this reason, as well as due to some evidence for its relationship to nuclear weapons attitudes from another study (Tyler and McGraw, 1983), it appeared that it might be fruitful to explore the relationship of locus of control to nuclear weapons attitudes in greater depth.

Levenson (1974) developed a multifactorial locus of control measure encompassing three scales which may have relevance for nuclear war and nuclear weapons attitudes: locus of control of internal origin, locus of control based on chance (these two together are similar to the internal-external construct of the Rotter, 1966 scale), and locus of control based upon the desires and actions of powerful others. It is hypothesized that a given subject scoring high on a particular locus of control scale will view nuclear war and nuclear weapons in a manner that is consonant with that control orientation.

Thus, it is predicted that those scoring high on the "chance" locus of control scale (i.e., having a strong "chance" orientation) will:

- believe that nuclear war would be maximally devastating;
- believe they have no control over the occurrence or prevention of nuclear war; and,

- have the lowest expectancies of surviving.

Conversely, those scoring high on "internal" as a control orientation are predicted to:

- play down the disastrousness and finality of nuclear war;
- believe that they can act in ways that will contribute to the prevention of nuclear war;
- believe that, should it occur,
  - they will survive, and that
  - actions can be taken to enhance survivability.

Overall, those with an "internal" locus of control are predicted to be relatively more optimistic about the occurrence of, and about the aftermath of nuclear war (compared with externals), as the perception that their fate could be controlled by nuclear war as a chance event should be dissonant for them.

Lastly, a "powerful others" control orientation is predicted to relate to nuclear war/weapons attitudes in a manner similar to a "chance" locus of control; particularly, if the occurrence of nuclear war is viewed as in the hands of "powerful others," then it may not be viewed as preventable through one's own (and others') actions.

Satisfaction with Life. Similarly, some of those groups that viewed nuclear war as likely within ten years also tend to score lower on measures of life satisfaction. This would include non-



whites, and lower income and education groups (Andrew and Withey, 1976). It is hypothesized that those individuals low on satisfaction with life may have a generally pessimistic cognitive set, which may influence their assessment of the probability of nuclear war in the near future. A similar mechanism, but in an opposite direction, is hypothesized to operate for people who are highly satisfied with their lives.

More specifically, the satisfied and unsatisfied groups are predicted to differ (with the unsatisfied group more pessimistic) on:

- the degree of worry about nuclear war;
- beliefs about the preventability of nuclear war;
- beliefs about the survivability of nuclear war;
- ~~beliefs~~ beliefs about the disastrousness of the consequences of nuclear war.


Defense Mechanisms. Psychological defenses have been examined in connection with attitudes towards the Soviet Union (Smith, Bruner and White, 1956), and such attitudes are logically, and perhaps pivotally, related to attitudes about nuclear war and nuclear weapons. Particularly, Smith et al. (1956) studied this in the context of "externalization," whereby internal conflicts become displaced onto an external object or event (specifically, the Soviet Union and its actions); this concept is obviously very closely akin to that of projection of aggressive impulses externally (which plays an important role in the hypotheses below).

More recently, psychological defenses have been discussed in connection with thoughts and feelings about nuclear war and nuclear

weapons, but primarily in the context of describing nuclear war- and nuclear weapons-related material that may be defended against. A major author in this area is Lifton (1968, 1982), who has discussed the phenomenon of "psychic numbing," as a result of which painful thoughts and affect relating to the prospect of, consequences of, and implications of preparing for nuclear war are blocked off from awareness. Although he has discussed in detail the content of what may be blocked off, he has discussed in only the most general way the details of the psychological mechanisms for doing so.

This study examines hypotheses relating to a quite different relationship between psychological defenses and nuclear war-/weapons-related psychological material - that is, attitudes, beliefs and expectations may themselves serve a defensive function with regard to other conflicts of the personality (this encompasses the "externalization" concept of Smith, Bruner and White, 1956). Given the ambiguity and indeterminateness of many aspects of nuclear weapons policy and the prospect of nuclear war, it is anticipated that the beliefs, attitudes and expectations of a given individual would reflect, rather than factual information or rational calculation, personality needs and aspects of his/her psychological defensive structure. This effect should be most apparent when the defense mechanisms of large numbers of subjects are examined, as the defensive elements of beliefs and attitudes are only partial contributors to their formation.

The following hypotheses relate psychological defensive structure (in the sense of defenses predominantly employed) to some aspects of



nuclear war/weapons attitudes, beliefs and expectations. The defense mechanism clusters employed in these hypotheses were taken from the instrument that was used to measure them, the Defense Mechanism Inventory (Gleser and Ihilevich, 1969 - actually, a shortened form of this instrument was used - see details on page 52 of the Methods section).

The defense clusters of the Defense Mechanism Inventory are:

1. TAO (turning against object): involves handling conflict "through attacking a real or presumed external frustrating object," (Gleser and Ihilevich, 1969, p. 52) and includes such defenses as identification with the aggressor and displacement.
2. PRO (projection): aggressive impulses are handled by imputing them to an external object.
3. PRN (principalization): involves such defenses as intellectualization, rationalization and isolation, which split off and repress affect, leaving the individual aware only of content.
4. TAS (turning against self): aggressive behavior is directed against self, e.g., masochism.
5. REV (reversal): the responses that are made are the reverse of the underlying affect; heavy use of denial is made; includes the defenses of negation, reaction formation and repression.

The following are hypotheses concerning the relationship of these defense clusters to attitudes, expectations and beliefs concerning nuclear war and nuclear weapons.

TAO: People who make significant use of Turning-Against-Others defenses are hypothesized to support nuclear policies that are expressive of their aggressive style. It is predicted that they will:

- be more likely to favor maintaining at current levels or increasing our nuclear preparedness, and to oppose reductions of any sort (possession of nuclear weapons by their country would be presumed to serve a symbolic aggressive need of theirs;
- have a special and pronounced distrust of the Soviet Union, as a result of their imputing to the Soviets their own aggressive style;
- view nuclear war as likely (assuming that they project their own combativeness, they should view it as probable that either the U.S. or the Soviet Union will begin nuclear war).

PRO: People who make pronounced use of Projection (particularly, of aggression) are hypothesized to exhibit a pattern similar to that predicted for those subjects who make pronounced use of Turning Against Others defenses, but primarily because they

impute aggressive motives to other countries that possess nuclear weapons. Thus, they are predicted to:

- favor building up nuclear weapons, or maintaining them at current levels;
- be highly anti-Soviet; and
- view nuclear war as likely.

TAS: The following hypotheses are put forth concerning the attitudes of high Turning Against Self scorers about nuclear war and nuclear weapons:

- Their fantasies about both nuclear war and its destructive consequences will be consonant with their self-punishing style. Thus, it is predicted that they will:
  - view the prospects for nuclear war as very high; and
  - believe that the consequences from nuclear war would be maximally destructive.
- They will favor unilateral initiatives in nuclear weapons reductions (conceivably, the military/political risks attendant with this course may represent unconsciously a deserved punishment).
- They will worry a great deal about nuclear war, with this worry serving a self-punishment function as well.

- They will feel impotent to take action which may contribute to making nuclear war less likely (owing to their difficulties with the expression of aggression).

REV: Owing to their hypothesized general tendency to deny, high scorers on Reversal are predicted to deny, as well:

- the likelihood of nuclear war;
- the disastrousness of the consequences of full-scale nuclear war; and
- their own worry about nuclear war.

PRN: High scorers on PRN may be expected to exhibit a more pacifistic orientation than their high-TAO and -PRO counterparts, as their defense involves the rationalization and intellectualization of aggressive impulses. Their intellectualizing style may also result in their being less worried about the prospect of nuclear war.

Summary of Hypotheses. The assumption underlying these hypotheses is that the indeterminateness of the prospect of nuclear war, coupled with the affect-eliciting properties of the universal perceived threat of nuclear war, predisposes attitudes towards nuclear war and nuclear weapons to become aligned with major orientations of the personality.

In their most general form, the hypotheses put forth concerning the relationships between personality measures (broadly speaking)

and nuclear war/weapons attitudes are:

- Sex-Role Orientation: differences between the sexes concerning nuclear war/weapons attitudes will be traceable to differences in sex-role orientation; where members of both sexes share similar sex-role orientations, their attitudes about nuclear war/weapons will be similar as well.
- Locus of Control: those with an "external" locus of control will exhibit attitudes concerning nuclear war/weapons consonant with the perception that they have no control over the occurrence, prevention or consequences of nuclear war; those with an "internal" control orientation will exhibit the opposite pattern of nuclear war/weapons attitudes.
- Life Satisfaction: those who are satisfied with life will hold more optimistic attitudes about nuclear war and nuclear weapons, across the board, than those who are not.
- Defense Mechanisms: nuclear war/weapons attitudes held by subjects are predicted to reflect the ways in which their psychological mechanisms of defense characteristically and habitually channel their aggressive impulses.

## CHAPTER II

### METHODS

This study involved the construction of a questionnaire to measure attitudes, beliefs and expectations about nuclear war and nuclear weapons, and the examination of relationships between potential correlates (personality, life satisfaction, political and religious, and demographic variables) and the nuclear war/weapons attitudes questionnaire, the Nuclear Weapons Orientation Measure (NWOM). The reporting of this study will be grouped into three stages: Stages I and II, item generation and item pool administration, for construction of the NWOM; and Stage III, administration of the NWOM along with measures of the potential correlates, and multivariate analyses of these data.

#### Stage I: Item Generation using Responses to Open-Ended Questions

In order to get a better understanding of the range of attitudes and beliefs in the area of nuclear war and nuclear weapons, two alternating lists of open-ended question were administered by telephone to members of the general population, and to members of groups with polarized positions about nuclear weapons.

#### Subjects

The group of subjects from the general population were selected .



initially at random from a criss-cross telephone directory for Springfield, Massachusetts (a city of western Massachusetts with a population of approximately 152,000 according to the World Almanac, 1985). They consisted of 16 males and 28 females, ranging in age from 19 to 93, with a mean age of 42.9 and a mean educational attainment of 13.4.

The subjects from the groups that were relatively polarized on nuclear weapons policy were from on-campus groups from a large university in Western Massachusetts (from an anti-nuclear group and from a politically conservative group), from members of (off-campus) anti-nuclear groups, and from members of a group who had opposed publicly making certain towns in Western Massachusetts nuclear free zones. The combined on- and off-campus anti-nuclear groups consisted of eight people, of which five were male and three were female, ranging in age from 20 to 63, with an average age of 41.5 and an average educational attainment of 17.4 (there were two respondents with Ph.D.'s in this group). The other group (which I will refer to as the pro-strategic defense group) consisted of five males and two females, ranging in age from 20 to 57, with a mean age of 34.6 and a mean educational attainment of 16.6 (two of the respondents in this group too held Ph.D.'s).

### Materials

Demographic questions: Each subject was asked his or her age, occupation, and last grade completed.

Open-ended questionnaire: Each subject was asked to respond to one of two lists of open-ended questions relating to attitudes and beliefs regarding nuclear weapons and nuclear war, with each list being

administered to 50% of the subjects (the questions used can be found in Appendix A, page 151 below). The content areas tapped by these questions were determined on the basis of readings on the topic of nuclear war/nuclear weapons, as well as through the examination of tables of contents and indexes of books dealing with this subject. In addition, an earlier list of open-ended question was sent to 15 agencies representing a variety of political orientations, for feedback, and for comments on content areas and on possible bias. Of the six agencies that responded, only two, the Arms Control and Disarmament Agency, and the Department of Defense, made suggestions that warranted alterations or additions in the pool of open-ended question. The final format and content of these questions were selected to take into consideration the feedback from the agencies, to encourage the widest possible range of responses, and with the idea of relative ease of administration over the telephone in mind. While the content areas of questions on the two forms overlapped to a considerable extent, they were worded quite differently, and were anticipated to elicit a different range of responses.

### Procedures

Each person from the Springfield area "general population group" was contacted by phone and read the following presentation:

"Hello. My name is Michael Rockowitz. I am working on my doctorate in psychology, and am doing a study on attitudes about nuclear war and nuclear weapons. Would you be willing to participate by taking about 20 minutes to answer some questions on this topic?"

When the respondent agreed to this, I then asked him or her questions about age, occupation and last grade completed, and then proceeded with one or the other of the two forms of the open-ended questionnaire.

The presentation to the members of the groups polarized on nuclear policy (the anti-nuclear and pro-strategic groups) was fundamentally similar to that for the general population group, but included mention of the non-partisan nature of the study, and also included the information that I was contacting them in order to be able to fairly represent the polar positions in my questionnaire.

Lengths of interviews over the phone ranged from 15 minutes to 1½ hours, and tended to be longer with members of the anti-nuclear and pro-strategic groups than they were with the "general population group", as members of the former groups responded to questions in far greater detail, and with far more information.

At some point during my telephone interviews of people from the general population group, I began no longer attempting to contact people who had been listed in the criss-cross directory as "retired", as older people were beginning to be over-represented in my sample. Also, approximately 85% of the calls were made during the day on weekdays. An awareness of these and other possible sources of sampling bias (such as self-selection on the part of respondents), along with an awareness of the benefits in general of expanding the range of opinions sampled as far as item construction was concerned, led me to the decision to interview the members of the anti-nuclear and pro-strategic groups.

Respondents' answers to the open-ended questions were recorded by hand as close to verbatim as time and practicality would allow.

### Formulation of Closed-Choice Items

All responses of all respondents to the open-ended questions were reviewed, and on the basis of these responses, as well as the suggestions of the agencies contacted, more than two hundred closed-choice likert-style items were generated. From among these, items were selected on the basis of whether they seemed to measure a nuclear war/weapons related area that was unique (relative to the other items), or related in a unique way to an area measured by other items, or represented a catch-phrase that multiple respondents echoed during the course of the interviews using open ended questions (e.g., "The Russians view nuclear weapons as just another weapon - just a bigger kind of bomb."). In addition, some of the most frequently asked questions in public opinion polls were included as items (e.g., regarding spending on nuclear weapons, or the likelihood of full-scale nuclear war).

#### Stage II: Administration and Analysis of the Nuclear War-/Weapons Related Item Pool

The item pool obtained as result of Stage I above (see Appendix B, page 154 below) was administered to two different samples, one Canadian, the other American.

### Subjects

Subjects in the Canadian sample consisted of 324 students taking an introductory course in psychology at the University of Windsor in Windsor, Ontario during the fall semester of 1984, who participated in exchange for extra credit towards their final grade. There were

120 males and 204 females, ranging in age from 17 to 51, with an average age of 20.3 for the males and 20.4 for the females.

Subjects in the American sample consisted of 239 college students, of which 27 were from an introductory course in psychology at Springfield College in Springfield, MA, 190 were from introductory courses in psychology at Holyoke Community College in Holyoke, MA, and 22 were from other courses at Holyoke Community College (introduction to sociology, human sexuality). There were 61 students from this sample who participated on a volunteer basis, with no external incentive for participation; the remaining 178 participated in exchange for extra credit towards their final grade. Of these 239 subjects, 66 were males and 173 were females, ranging in age from 18 to 55, with an average age for the males of 20.9, and an average age for the females of 23.4. All data gathering for this stage for the American sample occurred between December 1, 1984 and March 1, 1985.

### Materials

Materials consisted solely of an item pool of 118 nuclear war-/weapons-related items (see Appendix B; page 154 below). For most items, subjects indicated their degree of endorsement on a seven-point agree-disagree scale. A number of other item formats were employed as well, including ranking, multiple alternatives, and nine-point probability scales.

### Procedures

All students were informed of the true nature of the study prior to participation, i.e., that the aim of the study was to examine the

relationship of a variety of personality variables to nuclear war/weapons attitudes, and that the stage of research for which they were being asked to participate involved the development of an instrument for measuring attitudes towards nuclear war and nuclear weapons. Questionnaires containing the item pool with 118 items were distributed in class, and subjects completed them outside of class and then returned them.

#### Factor Analysis of the Pool of 118 Nuclear War-/Nuclear Weapons-Related Attitudes Items

Tables 2A, 2B and 2C show the results of principal components analyses for American, Canadian and combined samples, respectively, in which factors were rotated to the orthogonal varimax criterion. The extraction of 21 factors for these analyses was determined by scree test (Cattell, 1966) (in fact, approximately 21 factors were indicated for extraction by scree test, for all three factor analyses; it was kept to 21 for all three for purposes of uniformity and comparison). These 21 factors accounted for 55% of the total variance for the American sample, 53% of the total variance for the Canadian sample, and 50% of the total variance for the American and Canadian samples combined. All factors, for all three factor analyses of the 118-item pool, had eigenvalues greater than 1.0. Tables 2A, 2B and 2C display only those items of each factor that loaded greater than .40, and abbreviations for each item were used, for purposes of saving space (to view the item in its entirety, refer to the corresponding item number in Appendix B).

As the major factors extracted in Tables 2A, 2B and 2C were fun-

TABLE 2A

Principal Components (Varimax Rotation) Factor Loadings for  
American Responses to 118 Nuclear War/Weapons Attitudes Items

Factor	Item#	Items (paraphrased)	Loadings	Factor	Item#	Items (paraphrased)	Loadings		
1	23	US shld produce advncd/retire old NW**	.74	5	100	"I often think about poss. of N-war"	.74		
	49	US ldrs ignore Amer. peoples' wishes	-.66		97	"I am worried about poss. of N-war"	.64		
	101	US spending on NW	.65		83	N-war poss. "not affect pers. life"	-.59		
	1	Rank cont. build NW	.64		90	"Never imagined dying in N-war"	-.48		
	15	US shld never disarm	.60		71	Import. of politician NW position	.46		
	35	NW shld be outlawed	-.58		6	5	Rank unilat. reductions	.70	
	87	Against NW protests	.58			4	Rank unilat. freeze	.69	
	12	US shld never use NW	-.54			20	Unilat. reduct. if no bilat. agree.	.48	
	11*	US shld negot. eq. & verif. reduct.	-.54			-6	Rank unilat. abolition	.47	
	74	Maintain peace by N-war prep.	.53			18	US shld declare no-first-use	.42	
	24	US shld use NW if advntge in doing so	.52			7	73	"Nothing I can do prev. N-war"	.76
	98	NW use on Japan	.51				77	Citizens can make N-war less likely	-.56
	38	NW are a necessary evil	.51				72	Citizens shldn't try infl. ldrs on NW	.49
	53	US & USSR-cessate view mutual enemies	-.50		28		N-war prvntable by cult. commerce	-.45	
	19	US shld have no NW	-.49		8		67*	USSR wld abide by NW agreement	.54
	106	Feel safer if NW agreement	-.45				68*	USSR-interested stop arms race	.52
	8	US develop star wars	.45				86	Verif. of NW agreement impos.	-.45
	16	Unilat. US freeze induce bilat. frz.	-.43				9	76	Info. build NW publicly available
	29	Mutual buildup safer than sides uneq.	.41		40	Terr. will use NW hold countries host.		.60	
	52	US & USSR-shld agree not target cities	-.40		10	44		If N-war, more survive in USSR	.75
2	26	N-war wld end civilization	.59	43		If N-war, survive if flee pop'l areas		.60	
	110	Chances of own survival if N-war	-.59	61		USSR wldve bombed US if had NW first	.42		
	103	Percent human race surviving N-war	-.58	11		3	Rank bilat. reductions	.76	
	107	N-war limitable	-.54		2	Rank bilat. freeze	.70		
	104	Recovery time from N-war	.53		11*	US shld negot. eq. & verif. reduct.	.44		
	45	If N-war, one side could win	-.52		12	21	US wld blackmail USSR if no NW	.56	
	30	N-war inevit. if US or USSR NW launch	.51	17		US responsible for arms race	.53		
	32	N-war would be Armageddon	.49	13		10	US-clear w/USSR actions trigger N-war	.56	
	109	If USSR NW attack, US wld retal.	.46			7	US shld reduce non-essential NW	.43	
	96	After N-war, S. Hemis. unharmed	-.45		14	93	Educate for surviving N-war	.72	
33	N-war wld cause nuclear winter	.44	14			US shld build underground shelters	.63		
102	Time period radiation deadly	.43	37	NW are here to stay		.52			
79	Genetic damage to survivors	.42	15	31		N-war likelier from Civil Def. prep.	.57		
3	70	USSR is an evil empire		.73	16	84	Develp int'l rules for NW use	.51	
	51	USSR ldrs are ruthless		.71		55	US & USSR-req. NW strength-deterrence	.44	
	69	USSR can't be trusted		.68		64	USSR wld negot. if US superior in NW	.40	
	63	USSR wants to control world	.66	17		41	Small-scale N-war may sober US & USSR	.66	
	66	US NW prev. USSR invas. W. Europe	.61		25	N-war less likely than terr. use	.42		
	59	USSR wld blackmail US if no NW	.54		18	22	US shld use tact. NW if USSR inv. W. Eur.	.53	
	50	USSR ldra-NW just big bomb	.48			111	US wld use tact. NW if USSR inv. W. Eur.	.49	
	68*	USSR-interested stop arms race	-.48	19		57	Ameras. unaware of dest. pot'l of NW	.79	
48	US ldra value life more than USSR ldra	.45	56			Ameras.-NW just big bomb	.66		
65	USSR-attack US with NW if threatened	.44	58		Ameras. want US stronger than USSR	.51			
67*	USSR would abide by NW agreement	-.44	20		80	NW protesters shldn't break law	.75		
4	117	Likelihood N-war in 10 years		.78	21	no item CT .4			
	116	Likelihood N-war in 5 years		.69					
	114	Prob. N-war from minor incident		.62					
	118	Likelihood N-war in 50 years	.56						
	113	Prob. N-war from accident/unauth. lnch	.54						
	108	Prob. N-war 2 small countries	.44						

\*These items load on more than one factor.

\*\*Frequently used abbreviations: NW=nuclear weapons; N-war=nuclear war; ldrs=leaders.

TABLE 2B  
Principal Components (Varimax Rotation) Factor Loadings for  
Canadian Responses to 118 Nuclear War/Weapons Attitudes Items

Factor	Item#	Items (paraphrased)	Loadings	Factor	Item#	Items (paraphrased)	Loadings
1	23	US shld produce advncd/retire old NW**	.74	7	39	NW-produced due to manufact. greed	.65
[1]**	101	US spending on NW	.69	[-]			
	19	US shld have no NW	-.64	8	30	N-war inevit. if US or USSR NW Inch	.69
	78	Maintain peace by N-war prep.	.60	[2]	33	N-war wld cause nuclear winter	.46
	24	US shld use NW if advntge in doing so	.59		32	N-war would be Armageddon	.44
	38	NW are a necessary evil	.56	9	73	"Nothing I can do prev. N-war"	-.71
	15	US shld never disarm	.52	[7]	77	Citizens can make N-war less likely	.67
	22	US shld use tact. NW if USSR inv. W. Eur	.52		74	Will engage in NW-related activity	.61
	1	Rank cont. build NW	.51				
	35	NW shld be outlawed	-.49	10	41	Small-scale N-war may sober US & USSR	.49
	36	NW-responsible for present peace	.49	[717]	62	USSR-believe impos. win N-war	.46
	12	US shld never use NW	-.48		61	USSR wldva bombed US if had NW first	.44
	29	Mutual buildup safer than sides uneq.	.48				
	16	Unilat. US freeze induce bilat. frz.	-.48	11	93	Educate for surviving N-war	.75
	8	US develop star wars	.47	[14]	14	US shld build underground shelters	.61
	20	Unilat. reduct. if no bilat. agree.	-.47				
	98	NW use on Japan	.45	12	89	God will prevent N-war	.62
	87	Against NW protests	.45	[-]			
	49	US ldrs ignore Amer. peoples' wishes	-.43	13	4	Rank unilat. freeze	.70
	63*	USSR wants to control world	.40	[6]	5	Rank unilat. reductions	.61
					6	Rank unilat. abolition	.53
2	69	JSSR can't be trusted	.80				
[3]	70	USSR is an evil empire	.79	14	76	Info. build NW publicly available	.57
	51	USSR ldrs are ruthless	.75	[9]	40	Terr. will use NW hold countries host.	.54
	63*	USSR wants to control world	.67		25	N-war less likely than terr. use	.48
	68	USSR-interested stop arms-race	-.66				
	67	USSR would abide by NW agreement	-.57	15	3	Rank bilat. reductions	.77
	50	USSR ldrs-NW just big bomb	.54	[11]	2	Rank bilat. freeze	.67
	48	US ldrs value life more than USSR ldrs	.53				
	59	USSR wld blackmail US if no NW	.53	16	57	Amer. unaware of dest. pot'l of NW	.69
	66	US NW prev. USSR invas. W. Europe	.49	[19]	58	Amer. want US stronger than USSR	.63
					56	Amer.-NW just big bomb	.58
3	117	Likelihood N-war in 10 years	.77	17	44	If N-war, more survive in USSR	.70
[4]	118	Likelihood N-war in 50 years	.68	[10]	43	If N-war, survive if flee pop'd areas	.66
	116	Likelihood N-war in 5 years	.67				
	114	Prob. N-war from minor incident	.64	18	106	Feel safer if NW agreement	.60
	113	Prob. N-war from accident/Anauth. Inch	.59	[-]	80	NW protesters shldn't break law	-.42
	115	N-war occur by intentional? strike	.43				
	65	USSR-attack US with NW if threatened	.41	19	37	NW are here to stay	.53
4	110	Chances of own survival if N-war	.64	[-]	18	US shld declare no-first-use	-.50
[2]	103	Percent human race surviving N-war	.56				
	104	Recovery time from N-war	-.55	20	91	US produces first strike NW	.57
	96	After N-war, S. Remains unharmed	.51	[-]			
	79	Genetic damage to survivors	-.50	21	60	USSR-responsible for freeze movement	.53
	26	N-war wld end civilization	-.46	[-]			
	102	Time period radiation deadly	-.45				
	46	If N-war, don't want to live	-.42				
5	83	N-war poss. "not affect pers. life"	-.71				
[5]	100	"I often think about poss. of N-war"	.70				
	97	"I am worried about poss. of N-war"	.67				
	92	N-war fears affect future plans	.61				
	90	"Never imagined dying in N-war"	-.40				
6	53	US & USSR-coase view mutual enemies	.52				
[713]	84	Develop int'l rules for NW use	.50				
	78	N-war prvntable by cult. commerce	.48				
	52	US & USSR-shld agree not target cities	.48				
	82	US anti-balist. syst. destroy USSR NW	.45				
	10	US-clear w/USSR actions trigger N-war	.41				

\*These items load on more than one factor.

\*\*Frequently used abbreviations: NW=nuclear weapons; N-war=nuclear war; ldrs=leaders.

\*\*\*Numbers in brackets refer to corresponding factor numbers for the American sample (table 2A). The symbol [-] indicates the non-existence of a corresponding factor for the American sample.



TABLE 2C

Principal Components (Varimax Rotation) Factor Loadings for Responses of American and Canadian Samples combined to 118 Nuclear War/Weapons Attitudes Items\*\*

Factor	Item#	Items (paraphrased)	Loadings	Factor	Item#	Items (paraphrased)	Loadings	
(1), [1]	23	US shld produce advncd/active old NW*	.72	8	108	Prob. N-war 2 small countries	.54	
	101	US spending on NW	-.66		40	Terr. will use NW hold countries host.	.53	
	1	15	US shld never disarm	.61	(4), [9]	76***	Info. build NW publicly available	.51
		1	Rank cont. build NW	.60		25	N-war less likely than terr. use	.48
		78	Maintain peace by N-war prep.	.59	9-	5	Rank unilat. reductions	.59
		38	NW are a necessary evil	.58		4	Rank unilat. freeze	-.68
		24	US shld use NW if advntge in doing so	.56	(13), [6]	6	Rank unilat. abolition	.54
		19	US shld have no NW	-.54		10	"Nothing I can do prev. N-war"	.73
		49	US ldrs ignore Amer. peoples' wishes	-.53	77	Citizens can make N-war less likely	-.65	
		29	Mutual buildup safer than sides uneq.	.51	(9), [7]	74	Will engage in NW-related activity	-.46
		87	Against NW protests	.51		11	Small-scale N-war may sober US & USSR	.59
		12	US shld never use NW	-.47	64	USSR wld negot. if US superior in NW	.50	
		35	NW shld be outlawed	-.46	(10), [17]	55	US & USSR-eq. NW strength-deterrence	.46
		16	Unilat. US freeze induce bilat. frz.	-.45		12	If N-war, more survive in USSR	.73
		36	NW-responsible for present peace	-.45	(17), [10]	43	If N-war, survive if free pop'd areas	.70
98	NW use on Japan	.45	13	Educate for surviving N-war		.72		
8	US develop star wars	.43	(11), [14]	14	US shld build underground shelters	.67		
20	Unilat. reduct. if no bilat. agree.	-.42		14	Genetic damage to survivors	.49		
22	US shld use tact. NW if USSR inv. W.Eur.	.42	76***	72	Info. build NW publicly available	.44		
2	69	USSR can't be trusted		.77	(-), [-]	71	Citizens shldn't try infl. ldrs on NW	-.43
	70	USSR is an evil empire	.76	71		Import. of politician NW position	.42	
	(2), [3]	51	USSR ldrs are ruthless	.72	15	2	Rank bilat. freeze	.76
		63	USSR wants to control world	.67	(15), [11]	3	Rank bilat. reductions	.74
	68	USSR-interested stop arms race	-.66	16		89	God will prevent N-war	.68
	67	USSR would abide by NW agreement	-.58	(12), [-]	62	USSR-believe impos. win N-war	.46	
	66	US NW prev. USSR invas. W. Europe	.56		17	57	Amer. unaware of dest. pot'l of NW	.79
	59	USSR wld blackmail US if no NW	.53	(16), [19]	56	Amer.-NW just big bomb	.66	
	48	US ldrs value life more than USSR ldrs	.49		58	Amer. want US stronger than USSR	.57	
	50	USSR ldrs-NW just big boob	.48	18	7	US shld reduce non-essential NW	.53	
3	117	Likelihood N-war in 10 years	.82		(19), [13]	18	US shld declare no-first-use	.44
	116	Likelihood N-war in 5 years	.74	19		94	US not retal. if USSR NW attack	.50
	(3), [4]	118	Likelihood N-war in 50 years	.65	(-), [-]	42	N-war 2 uni cntrys allow dest. world pop	.45
		114	Prob. N-war from minor incident	.57		20	111	US wld use tact. NW if USSR inv. W. Eur.
		113	Prob. N-war from accident/nauth. lch	.51	(-), [18]	60	USSR-responsible for freeze movement	.56
115	N-war occur by intentional 1st strike	.42	(21), [-]					
4	103	Percent human race surviving N-war		.59				
	110	Chances of own survival if N-war	.58					
	(4), [2]	104	Recovery time after N-war	-.56				
		102	Time period radiation deadly	-.54				
5	100	"I often think about poss. of N-war"	.73					
	83	N-war poss. "not affect pers. life"	-.69					
	(5), [5]	97	"I am worried about poss. of N-war"	.66				
		92	N-war fears affect future plans	.56				
		90	"Never imagined dying in N-war"	-.47				
6	30	N-war inevit. if US or USSR NW inch	.69					
	33	N-war wld cause nuclear winter	.58					
	(8), [2]	32	N-war wld be armageddon	.55				
		26	N-war wld end civilization	.45				
7	39	NW-produced due to manufact. greed	.59					
	(7), [-]	52	US & USSR shld agree not target cities	.46				

\*Frequently used abbreviations: NW=nuclear weapons; N-war=nuclear war; ldrs=leaders.

\*\*The numbers in parentheses below the factor numbers on this table represent the corresponding factor number for the Canadian sample (table 2B); the numbers in brackets below factor numbers represent the corresponding factor numbers for the American Sample (table 2A). The symbols (-) and [-] are used to indicate the non-existence of corresponding factors.

\*\*\*This item loads on more than one factor.

damentally similar, comment will be made based on the interpretation of factors in Table 2C (combined American and Canadian samples); however, differences between the factors extracted for the Canadian and American samples will be discussed as well, when appropriate.

The following interpretations of these factors reflects the bipolar nature of the items that comprise them:

- Factor 1 of Table 2C (corresponding to factor 1 of Tables 2A and 2B) reflects a bipolar dimension of advocating a nuclear build-up or maintaining nuclear weapons preparedness at current or greater levels, versus making genuine reductions in nuclear weapons.
- Factor 2 of Table 2C (corresponding to factor 2 on Table 2B and factor 3 on Table 2A) concerns the perceived trustworthiness of the Soviet Union's leadership - one pole reflects the view that they are relatively trustworthy and interested in cooperating to prevent nuclear war, whereas the other pole reflects the perception that the Soviet leadership is politically ruthless and amoral. For the Americans, but not for the Canadians, a separate factor seems to have emerged concerning Soviet trustability vis a vis nuclear weapons treaties and agreements, in the form of factor 8 on Table 2A (although, in this factor, the items also loaded on the general Soviet trustability factor, factor 3 of Table 2A).

- Factor 3 of Table 2C (corresponding to factor 3 of Table 2B and factor 4 of Table 2A) concerns perceptions of the likelihood of nuclear war, with one pole reflecting the perception that nuclear war is likely, and the other pole reflecting the perception that it is unlikely.
- Factor 4 and factor 6 of Table 2C (similar to factors 4 and 8, respectively, of Table 2B) reflect, respectively, extent of expected damage from nuclear war (the poles reflecting expectations of great versus little damage) and the prospect of recovery from nuclear war (reflecting the poles of recovery possible versus recovery impossible). Whereas for the Canadian sample and the combined samples, separate factors emerged which concern expectations for extent of damage from nuclear war and expectations for recovery, for the American sample there was only one factor (factor 2 of Table 2A) which encompassed both of these concepts. Perhaps for the Americans, expectations of recovery were directly related to expectations of the extent of damage, whereas for the Canadians, these may have comprised two separate issues.
- Factor 5 of Table 2C (factor 5 on Tables 2A and 2B as well) concerns worry about nuclear war - one pole of this factor reflects the position "worried," whereas the other pole reflects the position "unworried."

- Factor 7 of Table 2C is not unambiguously interpretable. (in addition, although it shares an item with single-item factor 7 of table 2B, there was no obvious analogous factor for the American sample).
- Factor 8 of Table 2C (factor 14 of Table 2B, factor 9 of Table 2A) concerns perceptions of the likelihood of nuclear weapons use by small countries or terrorists, with one pole reflecting "likely" and the other pole reflecting "unlikely."
- Factor 9 of Table 2C (factor 13 of Table 2B and factor 6 of Table 2A) concerns attitudes about the desirability of unilateral nuclear weapons reduction, based to a large extent on ranking items, with one pole representing "pro" and the other pole representing the "anti" position.
- Factor 10 of Table 2C (factor 9 of Table 2B, factor 7 of Table 2A) concerns attitudes about one's ability to have an impact on the prospect of nuclear war, with one pole representing the position "impact possible" and the other pole, the position "impact not possible."
- Factor 11 of Table 2C (which very approximately corresponds to factor 10 of Table 2B and to factor 17 of Table 2A) seems to relate to belief versus disbelief in the effectiveness of deterrence to prevent nuclear war (although this interpretation of this factor is not certain).

- Factor 12 of Table 2C (factor 11 of Table 2B and factor 10 of Table 2A) concerns perceptions of the safety of unpopulated or sparsely populated areas during nuclear war, with one pole reflecting perceptions of such areas as "safer," and the other reflecting the perception that such areas would not be safer during nuclear war.
- Factor 13 of Table 2C (factor 11 of Table 2B and factor 14 of Table 2A) concerns attitudes about measures aimed at enhancing population survivability during nuclear war, with one pole reflecting the "pro" position, the other representing the "anti" position.
- Factor 14 of Table 2C was not unambiguously interpretable, nor did there appear to be analogous factors in Tables 2A or 2B.
- Factor 15 of Table 2C (factor 15 of Table 2B, factor 11 of Table 2A) concerns "pro" versus "anti" attitudes vis a vis bilateral nuclear weapons reduction (and, as in the case of the unilateral reductions factors such as factor 9 of Table 2C, was comprised of ranking items).
- Factor 16 of Table 2C is not unambiguously interpretable, although it seems to have an analogue in factor 12 of Table 2B (although none in Table 2A).
- Factor 17 of Table 2C (factor 16 in Table 2B, factor 19 in Table 2A) concerns perceptions of American attitudes about nuclear weapons, representing on the one hand that it is

aware, on the other hand, that it is ignorant, of the unique destructive potential and implications of nuclear weapons.

- Factor 18 of Table 2C seems to concern attitudes about making peace-oriented gestures vis a vis nuclear weapons towards the Soviet Union, and factor 19 of Table 2B and factor 13 of Table 2A may represent analogous factors, although this cannot be asserted with certainty.
- The remaining factors on Table 2C (factors 19, 20, and 21) cannot be interpreted with any degree of confidence.

Selection of specific items from among those of the pool of 118 nuclear war-/weapons-related attitudes items for use in the 60-item Nuclear Weapons Orientation Measure (the NWOM, which was administered along with a variety of personality and demographic measures in the final portion of this research), along with material pertaining to the factor structure and reliability of the NWOM, is discussed below beginning on page 57.

### Stage III: Administration of the NWOM

along with Potential Correlates

#### Subjects

Subjects were 273 college students (from both Holyoke Community College and Springfield College, of Western, Massachusetts), of which 76 were males and 197 were females, with a mean age for the males of 21.1, and a mean age for the females of 22.3. Subjects from the community college were from introductory courses in psychology and sociology, and from a human sexuality course; subjects from the four-year college were from courses in personality and in counseling. Approximately 85% of these subjects participated in exchange for credit towards their final grade; the remainder participated as volunteers.

#### Materials

Measures consisted of a short form of the Defense Mechanism Inventory (Wilson, 1982 - based on the measure developed by Gleser and Ihilevich, 1969), the short form of the Personal Attributes Questionnaire (Spence and Helmreich, 1978), a locus of control measure developed by Levenson (1973, 1974), Bradburn's (1969) measures of positive and negative affect along with other life satisfaction items, and the nuclear war/weapons attitudes instrument developed as part of this study, the Nuclear Weapons Orientation Measure (NWOM). In addition, subjects responded to a few items about political and religious beliefs, and to items of a demographic nature.

The Defense Mechanism Inventory. The present investigation used an abbreviated version of the Defense Mechanism Inventory that had been used experimentally in a previous study (Wilson, 1982). The original DMI (Gleser and Ihelevich, 1969) was constructed in order to measure the relative strength in a given individual of five groupings of psychological defenses. The groupings are: Turning Against Others (TAO), involving the acting out of aggressive impulses; Projection (PRO), which involves projection of aggressive impulses; Turning Against Self (TAS), concerning the the redirection of aggressive impulses engendered by external stimuli back towards self; Principalization (PRN) which encompasses such defenses as intellectualization and rationalization; and Reversal (REV), which involves such defenses as reaction formation, denial, and repression (descriptions of these groupings are provided in somewhat greater detail on page 31 above).

In the whole scale, the subject responds to ten stories, indicating how he (or she) would respond to the situation in the story, how he would like to respond, his feelings, and his thoughts in response to the story. For each of these response modes, the subject has five choices, each of which correspond to one of the defense groupings (TAO, TAS, PRO, PRN, REV); of these five choices, the subject must chose two - the one that is most representative, and the one that is least representative of himself or herself. Responses are summed according to a simple scoring formula.

In the abbreviated version of the DMI used here, the subject responded to only 3 out of the 10 stories from the original DMI - apart from that, the stories, response choices and scoring formulae of



this short form are identical to those of the original, whole-scale version. In the original version of the DMI, there were two forms, one for each sex; in the shortened version used here, there was only one form, as the stories and items selected from the original version were identical for both sexes. The three stories used in the short form involve anger- and aggression-generating situations (being splattered with mud from a passing car, getting a traffic ticket, and almost being hit by a piece of falling masonry from a building on which repair work is being done). Wilson (1982) reported part-whole correlations between the short form and the full-scale DMI as being greater than .80 for all defense scales except PRN (for which it was .11), and that Coefficient Alphas for the scales of the short form ranged from the low .50's to the high .60's. In the whole scale, test-retest reliabilities have been reported as ranging from the high .40's to the high .80's (Weissman, Ritter and Gordon, 1971). Wilson (1982) also used an aggression scale, DMI-AGG, created by summing PRO and TAO, and then subtracting PRN, REV and TAS, for which reliability (alpha) was reported at .80. The DMI-AGG scale was also computed and used in the present study.

Evidence of construct validity for the DMI is available from a variety of studies. Among these: DMI defense mechanism scores have been found to be correlated in ways that are consonant with psychoanalytic theory with MMPI scales (Gleser and Ihilevich, 1969); with relevant 16 PF scales (Cooper and Kline, 1982); with reactions to an experimental conflict situation (Gleser and Sacks, 1973) and with a measure of irrational beliefs (Morelli and Andrews, 1982). Specific

evidence for the validity of the short form used here can be seen in relationship found by Wilson (1982) between short form DMI scores and patterns of recovery from surgery.

The Personal Attributes Questionnaire. The items on the original PAQ were determined on the basis of ratings by subjects of characteristics for the typical adult male and female, for the "ideal individual," and for themselves. Those items were selected which differentiated the sexes, both in terms of self-reports, as well as in terms of stereotypes shared by the sexes about males and females.

The short form of the PAQ (used here) is comprised of 24 bipolar items which are used by subjects to rate themselves. These items are divided into three eight-item scales: "Masculinity" (socially desirable for both sexes, but believed to occur more often in males); "Femininity" (socially desirable for both sexes, but believed to occur more often in females); and "Masculinity-Femininity" (comprised of traits that are viewed as socially desirable for one sex but not for the other). Each of these scales is scored separately. The items on the short form were selected on the basis of the magnitude of their correlation with the original scale to which they belonged (i.e., from the original, longer PAQ). Correlations between the scales of the full PAQ and the scales of the short form were reported by Spence and Helmreich (1978) in the low .90's. Reliabilities, in the form of interitem consistency measured by Cronbach alphas for a student sample were .85, .82 and .78 for M, F, and M-F respectively (Spence and Helmreich, 1978).

Evidence for the validity of the PAQ exists in the finding that the sexes score in the expected directions, and significantly differently from each other, on the scales, and in the pattern of inter-correlations among the scales; which supports the authors' conceptualization of the masculinity/femininity construct as comprised by separate dimensions, rather than as characteristics that are bipolar and negatively related to each other (Spence, Helmreich and Stapp, 1975). There has also been evidence for the validity of the construct of androgyny as measured by the PAQ (represented by high scorers on both the M and the F scales) - for example, androgenous individuals exhibited higher comfort levels for cross-sexed tasks than did their more sex-role stereotyped counterparts (Spence and Helmreich, 1979).

The Levenson Locus of Control Scales. Levenson (1973, 1974) developed a multidimensional measure of locus of control, enabling greater differentiation of external control than does Rotter's (1966) I-E scale. Her three eight-item likert-style scales were designed to measure internal control, control by chance, and control by powerful others. Reliabilities (alphas) for the scales, on a population of adults from the Southwest, were reported as .64, .77, and .74 for the I (internal control), P (powerful others) and C (chance) scales respectively, and one-week test-retest reliabilities were reported as .64 (I), .74 (P), and .78 (C) (Levenson, 1974). Although a relatively limited amount of research has been done with this instrument, this tripartite differentiation of locus of control has yielded results

that support the usefulness of this differentiation (Levenson, 1973, 1975; Spring and Khanna, 1982; Hunt, Lester and Ashton, 1983).

Measures of Life Satisfaction. Satisfaction with life was measured by a number of different items, from different sources. The Life 3 question of Andrew and Withey (1976), which asks "How do you feel about your life as a whole?" (rated on a terrible-delighted 7-point scale) has a single item test-retest reliability (with a truly short-term interval of 20 minutes) reported by the authors as approximately .70. Other questions, also rated on a seven point scale, concerned satisfaction with leisure activities, family life, friendships, and health were taken from questions asked during nationwide surveys by the National Opinion Research Center.

Bradburn's Positive and Negative Affect Scales are comprised of five items apiece, to each of which the subject responds "yes" or "no". The two scales are reported to be uncorrelated, to have test-retest reliabilities in the low .80's, and to have been found to vary in meaningful ways with marital and work satisfaction (Bradburn, 1969).

Demographic, Religious and Political Belief Items. In addition to the usual demographic questions (age, sex, last grade completed, parent occupation and economic level, religion), subjects were also asked about their political party affiliation, degree of liberalism and conservatism (in separate items), the importance of religion to them, degree of belief in an afterlife, and to list what they considered to be the three most important problems in the world today.

The Nuclear Weapons Orientation Measure (NWOM). This 60-item measure of nuclear war attitudes was constructed on the basis of the factor analyses of responses to the pool of 118 nuclear war-/weapons-related attitudes items, discussed above on pages 42 to 50.

Table 3 concerns how items were selected for inclusion on the NWOM, grouped under the factors that were expected to emerge upon administration of this instrument (the expected factors themselves were numbered according to the factors that actually did emerge upon administration of this instrument). The factor groupings in this table were "expected" inasmuch as they reflect the items that loaded high on virtually identical factors for separate factor analyses of the 118-item pool (of nuclear war/weapons attitudes items) for the American and Canadian samples (and were therefore anticipated to do so in future factor analyses). In addition to listing the numbering of the items both on the item pool and on the NWOM, Table 3, in the rightmost column, also lists the inclusion reasons for each item (the key for which is at the bottom of the second page of Table 3). Those items coded "A" in the rightmost column loaded high on virtually identical factors in the separate Canadian and American factor analyses of the 118-item pool. Those items coded "B" in Table 3's rightmost column loaded high only for the American sample, and were included only when the "A" group was exhausted for a given "expected factor" and there were still too few items under that grouping. The ranking items which had high loadings on separate factor analyses of the 118-item pool for American and Canadian samples (coded "C" in the rightmost column of Table 3) were altered to likert-style items on the NWOM,

TABLE 3

Reasons for Item Inclusion on  
the NWOM, and Expected Factors

Item Pool#	Factor Name, and Items of, Expected Factor**	NWOM Item#	Reasons Included***
<u>Expected Factor 1A: Pro/Anti Unilateral Nuclear Weapons Reductions [9]</u>			
5	The US should make reductions in its nuclear weapons, even if other countries do not do the same.	8	C
4	The US should, on its own, stop testing, building, or putting into place nuclear weapons.	9	C
6	The US should, on its own, get rid of all of its nuclear weapons.	2	C
18	The US should declare that it will never be the first to use nuclear weapons.	4	B
<u>Expected Factor 1B: Build-maintain/Reduce Nuclear Weapons [1]</u>			
23	The US should keep on producing new, more advanced nuclear weapons while retiring older, out-of-date weapons.	6	A
101	The US government spends _____ on nuclear weapons. (1=far too little/7=far too much)(-)	46	A
15	The US should never disarm - it should keep its nuclear weapons at current or greater levels.	11	A
35	Nuclear weapons should be outlawed altogether. (-)	37	A
24	The US should use nuclear weapons if there is any advantage to it in doing so.	3	A
78	The best way for the US to maintain peace is for it to prepare for nuclear war.	41	A
<u>Expected Factor 2: Perceived Soviet Machiavellianism [2]</u>			
69	The Soviet Union cannot be trusted.	12	A
70	The Soviet Union really is an evil empire.	16	A
51	The leaders of the Soviet Union are ruthless.	23	A
63	The Soviet Union is not interested in controlling the whole world. (-)	14	A
66	The Soviet Union would invade W. Europe were it not for the nuclear weapons of the US.	60	A
<u>Expected Factor 3: Pro/Anti Bilateral Nuclear Weapons Reductions [15]</u>			
—	It would be better for the US to keep its nuclear weapons at current or greater levels, than for it to have an agreement with the Soviet Union for equal reductions in nuclear weapons on both sides. (-)	17	D
2	The US and the Soviet Union should come to an agreement to stop testing, building or installing additional nuclear weapons.	39	C
3	The US should negotiate with the Soviet Union to obtain equal and verifiable nuclear weapons reductions on both sides.	7	C
—	The US should reduce its nuclear weapons on its own - an agreement with the Soviet Union for equal nuclear weapons reductions on both sides is not necessary. (-)	10	D
—	The best nuclear weapons choice for the US would be an agreement for equal nuclear weapons reductions between itself and the Soviet Union.	26	D
<u>Expected Factor 4: Likelihood of Nuclear War [3]</u>			
113	Full-scale nuclear war between the US and the Soviet Union could occur accidentally or by unauthorized launch.	52	A
114	Full-scale nuclear war between the US and the Soviet Union could occur as an escalation from a relatively minor event or situation.	56	A
116	How likely do you think it is that the US will get into a nuclear war within 5 years?	51	A
117	How likely do you think it is that the US will get into a nuclear war within 10 years?	55	A
118	How likely do you think it is that the US will get into a nuclear war within 50 years?	59	A
<u>Expected Factor 5: Pro/Anti Preparations aimed at Surviving Nuclear War [13]</u>			
14	The US should put money into building a system of underground shelters in case of nuclear war.	1	A
93	People could and should be educated on surviving nuclear war.	35	A
37	Nuclear weapons are here to stay - they will never be gotten rid of completely.	19	B
—	The US should invest money in measures aimed at enabling its people and institutions to survive in the event of nuclear war.	5	E
<u>Expected Factor 6: Likelihood of Proliferative Use of Nuclear Weapons [8]</u>			
40	Nuclear weapons will be used in the future by terrorists to hold whole countries hostage.	58	A
76	The information regarding how to build a nuclear weapon is publicly available in the US.	29	A
108	In the future, a small country will use nuclear weapons against another small country.	49	B
—	Nuclear weapons will be used within the next 50 years by small countries or terrorists.	53	E

(table continues next page)

\*These item numbers refer to the numbering on the 118-item pool of nuclear war/weapons attitudes and beliefs items.

\*\*These groupings of items represent the way I expected them to occur as factors after the NWOM was administered, based on the factors that emerged for the 118-item pool. The expected factors are numbered, however, according to the order of the actual factors that emerged (shown in Table 4), in order to facilitate the reader's comparison of the two groupings of the (same) items. The numbers in brackets following the expected factor names represent numbers of corresponding factors from Table 2C above (factor analysis of the 118-item pool for the combined samples).

\*\*\*See bottom of next page for key to the letters used under the column "Reasons Included".

TABLE 3 (Continued)

Item Pool#	Factor Name, and Items of, Expected Factor	NWOM Item#	Reasons Included***
<u>Expected Factor 7: Perceived Manageability of the Consequences of Nuclear War [4]</u>			
26	Full-scale nuclear war between the US and the Soviet Union would end civilization as we know it.	45	A
110	My own chances of surviving full-scale nuclear war between the US and the Soviet Union.	50	A
103	The percentage of the human race likely to be alive one year after full-scale nuclear war.	48	A
104	How long might it take mankind and society to recover from a full-scale nuclear war?(-)	47	A
107	A nuclear war could be contained and limited, as an alternative to either conventional warfare or full-scale nuclear war.	28	B
<u>Expected Factor 8: Worry about Nuclear War [5]</u>			
83	The prospect of nuclear war has not affected my personal life greatly.(-)	30	A
90	I have never imagined myself dying in a full-scale nuclear war.(-)	32	A
97	I am worried about the possibility of full-scale nuclear war.	22	A
100	I often think about the possibility of nuclear war.	25	A
71	My opinion of a political candidate is greatly influenced by his or her position on matters relating to nuclear weapons.	44	B
<u>Expected Factor 9: Perceived Safety of Sparsely Populated Areas During Nuclear War [12]</u>			
44	If full-scale nuclear war between the US and the Soviet Union occurs, more people would survive in the Soviet Union than in the US.	54	A
43	If full-scale nuclear war between the US and the Soviet Union occurs, you stand a better chance of surviving if you can manage to get away from densely populated areas.	20	A
--	If full-scale nuclear war between the US and the Soviet Union occurs, I hope that I am in a relatively unpopulated area at the time.	40	E
--	If full-scale nuclear war between the US and the Soviet Union occurs, you stand a better chance of surviving if you are living in a sparsely populated neutral country.	27	E
<u>Expected Factor 10: Potency/Powerlessness to Prevent Nuclear War [10]</u>			
73	There is nothing I can do to prevent nuclear war.(-)	36	A
77	Ordinary citizens can take action which will make nuclear war less likely.	24	A
--	I think it would be worthwhile to engage in activity taking a stand on nuclear weapons.	42	F
72	Ordinary citizens of the US should not attempt to influence decisions of leaders about nuclear war and nuclear weapons - these matters are too complex for them to really understand.(-)	34	B
28	Full-scale nuclear war between the US and the Soviet Union may be able to be prevented if the US and its allies build communication and cultural bridges with the Soviet Union.	38	
<u>Expected Factor 13: American Ignorance of the Destructive Potential of Nuclear Weapons [17]</u>			
56	Most people in the US view nuclear weapons as just another kind of weapon - just a bigger kind of bomb.	18	A
57	Most people in the US do not realize the degree of destruction that nuclear weapons are capable of.	21	A
58	Most people in the US would like the US to be stronger than the Soviet Union in nuclear weapons.	43	A
--	Most people in the US are not genuinely worried about the possibility of nuclear war.	31	E
<u>Expected Factor --: Trust/Distrust of Soviet Cooperation with Nuclear Weapons Agreements (didn't emerge on factor analysis of NWOM) [See Fac. 8, Table 2A]</u>			
67	The Soviet Union will abide by any nuclear weapons agreement that it signs with the US.	57	B
68	The Soviet Union is genuinely interested in slowing or stopping the arms race.	13	B
86	Verification of whether the Soviet Union is complying with a nuclear arms limitation agreement is impossible.(-)	33	B
62	The Soviet Union believes it is possible to win a nuclear war.(-)	15	G

## \*\*\*Reasons for inclusion of items on the NWOM:

- A - item loaded greater than .4 for both American and Canadian Samples.
- B - item loaded greater than .4 for the American sample only.
- C - item altered from ranking to likert-style format; ranking item had loaded greater than .4 for both American and Canadian samples.
- D - item constructed for the NWOM as it seemed to reflect a style of response to the ranking items (items 1 to 1) of the 118 item pool.
- E - item constructed in order to give the (expected) factor a minimum of 4 items.
- F - reworded, and somewhat semantically altered version of an item that loaded greater than .4 on the Canadian and the combined (American and Canadian) factor analyses.
- G - item loaded greater than .38 for the American sample.

as some of the subjects had difficulty correctly following instructions regarding the ranking task. Items coded "D" reflected a pattern of response to the ranking items of the 118-item pool that I attempted to encompass with likert style items. Items coded "E", "F" and "G" in the rightmost column of Table 3 were added to some expected factor groupings in order to give them a minimum of four items (when it was not possible to generate items for expected factors with the item selection rationales previously mentioned). The last expected factor listed in Table 3 (not numbered) was included because it appeared to be a theoretically interesting differentiation regarding attitudes towards the Soviets ("trustworthiness of the Soviets in general", and "trustworthiness regarding arms limitations agreements", were anticipated to have the potential to come through as two separate dimensions for American subjects, as these factors emerged on the factor analysis of the 118-item pool for the Americans only).

#### Procedures

All subjects were solicited for participation in this research in class, and were informed of the true nature of the study (without going into detail about specific hypotheses). Subjects filled out the questionnaires outside of class, and then returned them to their professors.



## CHAPTER III

### RESULTS

#### Factor Structure of the Nuclear Weapons Orientation Measure (NWOM)

Table 4 shows a principal components analysis on responses to the 60 NWOM items in which factors were rotated to the orthogonal varimax criterion. Number of factors extracted was determined by scree test (Cattell, 1966), and they accounted for 64% of the total variance, with no eigenvalues below 1.0. Only those items loading greater than .40 are shown. Factor names are also displayed.

Factor 1, Pro Unilateral Nuclear Weapons Reductions versus Maintaining/Building Up Nuclear Weapons, reflects a polarized dimension of favoring unilateral reductions in nuclear weapons, versus favoring a build-up in nuclear weapons or maintaining current levels of nuclear preparedness. This factor differs importantly from factor 1 of the factor analyses on the 118-item pool (Tables 2A, 2B, and 2C) - the reductions pole of that factor was not specifically unilateral, and is probably the result of the introduction of likert-style items that had been ranking items in those previous analyses. Nevertheless, this factor can be viewed as representing the extreme, diametrically opposed courses of action that are advocated regarding nuclear weapons.

Factor 2, Perceived Soviet Machiavellianism, is virtually the same factor regarding the Soviet Union that emerged in the previous

TABLE 4

Principal Components Analysis (Varimax Rotation)  
of the Items of the Nuclear Weapons Orientation Measure

Item#	Factor Names, and Items	Loadings <sup>1</sup>	Alphas <sup>2</sup>
<u>Factor 1: Pro Unilateral Nuclear Weapons Reductions vs. Maintaining/Building up Nuclear Weapons</u>			.86
8	The US should make reductions in its nuclear weapons, even if other countries do not do the same.	.81	
9	The US should, on its own, stop testing, building, or putting into place nuclear weapons.	.77	
2	The US should, on its own, get rid of all of its nuclear weapons.	.77	
10	The US should reduce its nuclear weapons on its own - an agreement with the Soviet Union for equal nuclear weapons reductions on both sides is not necessary.	.59	
6	The US should keep on producing new, more advanced nuclear weapons while retiring older, out-of-date weapons.	-.55	
11	The US should never disarm - it should keep its nuclear weapons at current or greater levels.	-.50	
4	The US should declare that it will never be the first to use nuclear weapons.	.46	
46	The US government spends _____ on nuclear weapons. (1=far too little, 7=far too much)	.46	
<u>Factor 2: Perceived Soviet Machiavellianism</u>			.82
23	The leaders of the Soviet Union are ruthless.	.77	
16	The Soviet Union really is an evil empire.	.72	
12	The Soviet Union cannot be trusted.	.71	
13	The Soviet Union is genuinely interested in slowing or stopping the arms race.	-.67	
14*	The Soviet Union is not interested in controlling the whole world.	-.53	
60	The Soviet Union would invade W. Europe were it not for the nuclear weapons of the US.	.51	
57	The Soviet Union will abide by any nuclear weapons agreement that it signs with the US.	-.48	
33*	Verification of whether the Soviet Union is complying with a nuclear arms limitation agreement is impossible.	.47	
<u>Factor 3: Pro/Anti Bilateral Nuclear Weapons Reductions</u>			.78
26	The best nuclear weapons choice for the US would be an agreement for equal nuclear weapons reductions between itself and the Soviet Union.	.79	
39	The US and the Soviet Union should come to an agreement to stop testing, building, or installing additional nuclear weapons.	.77	
7	The US should negotiate with the Soviet Union to obtain equal and verifiable nuclear weapons reductions on both sides.	.66	
38	Full-scale nuclear war between the US and the Soviet Union may be able to be prevented if the US and its allies build communication and cultural bridges with the Soviet Union.	.61	
17	It would be better for the US to keep its nuclear weapons at current or greater levels, than for it to have an agreement with the Soviet Union for equal reductions in nuclear weapons on both sides.	-.53	
37	Nuclear weapons should be outlawed altogether.	.42	
<u>Factor 4: Likelihood of Nuclear War</u>			.81
55	How likely do you think it is that the US will get into a nuclear war within 10 years?	.84	
59	How likely do you think it is that the US will get into a nuclear war within 50 years?	.78	
51	How likely do you think it is that the US will get into a nuclear war within 5 years?	.76	
52	Full-scale nuclear war between the US and the Soviet Union could occur accidentally or by unauthorized launch.	.57	
56	Full-scale nuclear war between the US and the Soviet Union could occur as an escalation from a relatively minor event or situation.	.54	
<u>Factor 5: Pro/Anti Preparations aimed at Surviving Nuclear War</u>			.76
1	The US should put money into building a system of underground shelters in case of nuclear war.	.84	
5	The US should invest money in measures aimed at enabling its people and institutions to survive in the event of nuclear war.	.83	
35*	People could and should be education on surviving a nuclear war.	.54	
<u>Factor 6: Likelihood of Proliferative Use of Nuclear Weapons</u>			.77
49	In the future, a small country will use nuclear weapons against another small country.	.79	
53	Nuclear weapons will be used within the next 50 years by small countries or terrorists.	.77	
58	Nuclear weapons will be used in the future by terrorists to hold whole countries hostage.	.73	

\*These items load on more than one factor.

<sup>1</sup>Only loadings greater than .4 are shown.

<sup>2</sup>These Cronbach Alphas pertain to the items shown, for each factor (i.e., not for any items loading less than .4 on a given factor).

TABLE 4 (Continued)

Item#	Factor Names, and Items	Loadings	Alphas
	<u>Factor 7: Perceived Manageability of the Consequences of Nuclear War</u>		.70
48	The percentage of the human race likely to be alive one year after full-scale nuclear war.	.70	
47	How long might it take mankind and society to recover from a full-scale nuclear war?	-.68	
50	My own chances of surviving full-scale nuclear war between the US and the Soviet Union.	.65	
45*	Full-scale nuclear war between the US and the Soviet Union would end civilization as we know it.	-.56	
	<u>Factor 8: Worry about Nuclear War</u>		.74
32	I have never imagined myself dying in a full-scale nuclear war.	-.77	
25	I often think about the possibility of nuclear war.	.75	
30	The prospect of nuclear war has not affected my personal life greatly.	-.66	
22	I am worried about the possibility of full-scale nuclear war.	.58	
31	Most people in the US are not genuinely worried about the possibility of nuclear war.	-.42	
	<u>Factor 9: Perceived Safety of Sparsely Populated Areas During Nuclear War</u>		.69
27	If full-scale nuclear war between the US and the Soviet Union occurs, you stand a better chance of surviving if you are living in a sparsely populated neutral country.	.85	
20	If full-scale nuclear war between the US and the Soviet Union occurs, you stand a better chance of surviving if you can manage to get away from densely populated areas.	.83	
54	If full-scale nuclear war between the US and the Soviet Union occurs, more people would survive in the Soviet Union than in the US.	.46	
	<u>Factor 10: Potency/Powerlessness to Prevent Nuclear War</u>		.63
24	Ordinary citizens can take action which will make nuclear war less likely.	.76	
36	There is nothing I can do to prevent nuclear war.	-.67	
42	I think it would be worthwhile to engage in activity taking a stand on nuclear weapons	.52	
	<u>Factor 11: Not Interpretable (Ambiguous)</u>		--
3	The US should use nuclear weapons if there is any advantage to it in doing so.	.54	
44	My opinion of a political candidate is greatly influenced by his or her opinion on matters relating to nuclear weapons	-.51	
45*	Full-scale nuclear war between the US and the Soviet Union would end civilization as we know it.	-.49	
31*	Most people in the US are not genuinely worried about the possibility of nuclear war.	.41	
	<u>Factor 12: Not Interpretable (Single item)</u>		--
28	A nuclear war could be contained and limited, as an alternative to either conventional warfare or full-scale nuclear war.	.71	
	<u>Factor 13: American Ignorance of the Destructive Potential of Nuclear Weapons</u>		--**
21	Most people in the US do not realize the degree of destruction that nuclear weapons are capable of.	.73	
18	Most people in the US view nuclear weapons as just another kind of weapons - just a bigger kind of bomb.	.69	
	<u>Factor 14: Not Interpretable (Ambiguous)</u>		--
43	Most people in the US would like the US to be stronger than the Soviet Union in nuclear weapons.	.56	
35*	People could and should be educated on surviving nuclear war.	.43	
14*	The Soviet Union is not interested in controlling the whole world.	-.40	
	<u>Factor 15: Not Interpretable (Ambiguous)</u>		--
15	The Soviet Union believes it is possible to win a nuclear war	.72	
19	Nuclear weapons are here to stay - they will never be gotten rid of completely.	.42	
	<u>Factor 16: Not Interpretable</u>		--
40	If full-scale nuclear war between the US and the Soviet Union occurs, I hope that I am in a relatively unpopulated area at the time.	.58	
33*	Verification of whether the Soviet Union is complying with a nuclear arms limitation agreement is impossible.	.41	

\*These items load on more than one factor.

\*\*Alpha not computed as only two items were involved.

analyses. However, there was no differentiation between trust/distrust of the Soviets in general, and trust/distrust of their willingness to comply with nuclear weapons agreements - both of these dimensions were encompassed under a single factor, factor 2 of the NWOM.

Factor 3, Pro/Anti Bilateral Nuclear Weapons Reductions, concerns the individual's position on bilateral nuclear weapons agreements between the United States and the Soviet Union. Some of the items on this factor were converted from (or extrapolated from the responses to) the ranking items of the 118-item pool.

Factor 4, Likelihood of Nuclear War, is very similar to a factor that occurred on each of the factor analyses of the 118-item pool (having very nearly identical items). As in those analyses, one pole of this factor represents the position "likely," and the other pole, "unlikely."

Factor 5, Pro/Anti Preparations aimed at Surviving Nuclear War, is also quite similar to the analogous factors displayed in Tables 2A, 2B and 2C. However, in the case of this factor, an item that was fabricated to supplement the "expected factor grouping" (based on the original factor, which loaded on few items), loaded quite highly (item #5).

Factors 6, 7, 8, 9, 10, and 13 were all quite similar to the analogous factors that emerged as a result of the factor analyses of the 118-item pool of nuclear war-/weapons-related attitudes

items. For factor 6, Likelihood of the Proliferative Use of Nuclear Weapons, the bipolar dimensions regarding nuclear weapons use by small countries and/or terrorists was (as it had been on analogous factors in Tables 2A, 2B and 2C) likely versus unlikely. For factor 7, Perceived Manageability of the Consequences of Nuclear War (which encompassed both the concepts of extent of expected damage and potential for recovery from nuclear war), the poles of this dimension can be thought of as "consequences manageable" versus "consequences unmanageable." For factor 8, Worry about Nuclear War, the polar dimensions are simply "worried" versus "unworried." For factor 9 of the NWOM, Perceived Safety of Sparsely Populated Areas During Nuclear War, the poles reflect simply "safer" versus "not safer." Factor 10, Potency/Powerlessness to Prevent Nuclear War, concerns the individual's belief in his or her ability (and the ability of "ordinary citizens") to have an impact on preventing nuclear war. Factor 13, American Ignorance of the Destructive Potential of Nuclear Weapons, involves American awareness of the unique destructive potential and implications of nuclear weapons, with one pole reflecting "ignorant," the other reflecting "aware."

In the case of factors 6, 9, and 10, items that had been fabricated in order to increase the number of items for an "expected factor" grouping proved to load highly on the factor they were intended for (items 53, 27, and 42). In one case, an item fabricated for one factor loaded instead on another factor (item 31, meant to supplement the items of NWOM factor 13, American Ignorance

of the Destructive Potential of Nuclear Weapons, loaded instead on NWOM factor 8, Worry about Nuclear War).

Factors 11, 12, 14, 15 and 16 were not interpreted. In the case of factor 12, this was because only a single item loaded high on this factor; in the case of factors 11, 14, 15 and 16, although they had multiple items, their interpretation was not sufficiently clear to warrant their being used in further analyses. In the analyses to be displayed and discussed below, the NWOM factors will be referred to by their numbers in this factor analysis (the numbers being factors 1 through 10, and factor 13).

Also on Table 4, in the rightmost column, Cronbach alphas for items loading greater than .4 are displayed for all interpretable factors of the NWOM except for factor 13 (which had only two high-loading items). Clearly, these reliabilities are at acceptable levels, although they reflect as well the fact that these item clusters were derived through factor analysis on the same data for which the alphas were calculated.

Factor Structure of Potential Correlates of  
Nuclear War-/Weapons-Related Attitudes

Factor analyses were performed on the variables for which relationships to nuclear war/weapons attitudes were examined, in order to identify unique sources of variance among them. These potential correlates were grouped into the following categories:

- 1) Personality Variables: the Defense Mechanism Inventory, the Personal Attributes Questionnaire, and the Levenson Locus of Control measure.
- 2) Life Satisfaction Variables: the Bradburn Positive and Negative Affect measures; and the five life satisfaction items (satisfaction with non-working activities, satisfaction with health, satisfaction with family life, satisfaction with friendships, and satisfaction with life as a whole).
- 3) "Values and Attitudes" Variables: these included items about political orientation and religious belief (items concerning self-rated liberalism and conservatism, importance of religion, and belief in an afterlife).
- 4) Demographic Variables: age, sex, last grade completed, parent occupational status, self-rated economic level of family of origin.

Table 5A shows a factor analysis of the personality variables, rotated to the orthogonal varimax criterion. These four factors ac-

TABLE 5A  
 Principal Components Analysis  
 (Varimax Rotation): Personality Variables\*

Variables**	Factors			
	I	II	III	IV
Turning Against Others (DMI)	-.86			
Reversal (DMI)	.80			
Projection (DMI)	-.79			
Principalization (DMI)	.72			.48
Powerful-Others (Locus of Control)		.83		
Chance (Locus of Control)		.79		
Masculinity (PAQ)		-.65		
M-F (PAQ)			.82	
Femininity (PAQ)			-.79	
Turning Against Self (DMI)				-.80
Internal (Locus of Control)				.56

\*Only loadings greater than .40 are shown.

\*\*For definitions of the Defense Mechanism Inventory variables, see p. 31 above.



counted for 68% of the total variance, all with eigenvalues greater than 1.0. Factor 1 encompasses four of the scales of the Defense Mechanism Inventory: Reversal and Principialization (loading positively), and Turning Against Others and Projection (loading negatively). Since the stories and the items of the abbreviated version of the DMI used here deal primarily with aggressive impulses, and since Reversal and Principialization in this context may be viewed as concerning denial of aggressive impulses whereas Turning Against Others and Projection concern the expression of aggressive impulses, factor 1 will be named Denial versus Expression of Aggressive Impulses. Factor 2 loaded positively on external locus of control scales "Powerful Others" and "Chance", but loaded negatively, surprisingly, on the Masculinity scale of the PAQ (instead of on the "Internal Control" scale, as was expected). The most plausible explanation for this is that the items of the Masculinity scale of the PAQ may be viewed as tapping a kind of "psychological independence" dimension (this conjecture is based on an examination of the actual items of the Masculinity scale, which involve self-ratings of the items "independent," "active," "competitive," "makes decisions easily," "never gives up easily," "self-confident," "superior," and "stands up well under pressure"). Therefore, factor 2 will be referred to as External Control versus Independence. Factor 3 loaded positively on the M-F (masculinity-femininity) scale of the PAQ, and negatively on the Femininity scale of the PAQ. This finding too was surprising, as the PAQ Masculinity scale, rather than the M-F scale, was designed to complement the Femininity scale. Perhaps a partial explanation for this lies in the fact that the Masculinity and

Femininity scales were designed to vary independently of each other (Spence and Helmreich, 1978). In any event, an examination of the items that comprise the M-F and the Femininity scales points up why they should have factored together. The Femininity scale would seem to tap a dimension of "Orientation to Others" (with such self-rating items as "emotional," "devotes self to others," "gentle," "helpful to others," "aware of feelings of others," "understanding towards others," "warm towards others"), whereas the M-F scale concerns what might be referred to as "Self-Oriented" items (e.g., "indifferent to approval," "aggressive," "dominant," "never cries," "feelings not easily hurt," "little need for security," "worldly"). Thus, factor 3 will be referred to as Self versus Other Orientation. Factor 4 loaded positively on "Internal Control," and negatively on "Turning Against Self" (from the DMI). "Principalization" (DMI) also loaded secondarily and positively on this factor. Both Principalization and Internal Control represent an orientation of responsibility for positive life events and positive feelings, whereas Turning Against Self involves items tapping self-blame, self-doubt and inadequacy. Therefore, factor 4 will be referred to as Internal Control (or self responsible for positive events) versus Self Responsible for Negative Events.

Table 5B shows a factor analysis of the life satisfaction variables, orthogonally rotated to the varimax criterion. These two factors account for 54% of the total variance, and all had eigenvalues greater than 1.0. Factor 1 is a general factor that loaded high on all life satisfaction variables except the Bradburn Negative Affect Scale, and which loaded particularly high on satisfaction with non-

TABLE 5B

Principal Components Analysis (Varimax  
Rotation): Life Satisfaction Variables\*

Variables	Factors	
	I	II
Satisfaction: Non-working Activities	.71	
Satisfaction: Health	.69	
Bradburn Positive Affect Scale	.62	
Bradburn Negative Affect Scale		-.84
Satisfaction: Life as a whole	.53	.55
Satisfaction: Friendships	.52	.49
Satisfaction: Family Life	.60	.39

\*Only loadings greater than .35 are shown.

working (leisure) activities, on satisfaction with health, and on the Bradburn Positive Affect scale. Factor 1 will be referred to as Presence/Absence of a Positive sense of Well-Being. Factor 2 loaded high and negatively on the Bradburn Negative Affect scale, and somewhat less highly and positively on satisfaction with life as a whole, satisfaction with friendships, and satisfaction with family life. Factor 2 will be referred to as Satisfaction with Significant Relationships versus Negative Affect.

Table 5C shows a principal components analysis rotated to the orthogonal varimax criterion for the "values and attitudes" (political and religious) variables. These two factors accounted for 68% of the variance, and all eigenvalues were greater than 1.0. The two factors that emerged were very clear-cut and interpretable. Factor 1 encompassed the two religious items, and was labeled Presence/Absence of Religious Orientation. Factor 2 loaded positively on self-rated liberalism, and negatively on self-rated conservatism, and will be referred to as simply Liberalism/Conservatism.

Table 5D shows a principal components analysis, rotated orthogonally using the varimax procedure, for the demographic variables. These two factors accounted for 54% of the total variance, and all eigenvalues were greater than 1.0. Factor 1 encompassed the variables "Parent Occupation" (based on the rating system used in Hollingshead and Redlich, 1958), self-rated economic level of family of origin, and age. Parent occupation and economic level were positively related, and age was negatively related, to this factor. The explanation for this would seem to be that, in this sample, students from a higher

TABLE 5C

Principal Components Analysis (Varimax  
Rotation): Values and Attitudes\*

Variables	Factors	
	I	II
Belief in Afterlife	.83	
Importance of Religion	.82	
Political Liberalism		.81
Political Conservatism		-.71

\*Only loadings above .40 are shown.

TABLE 5D

Principal Components Analysis  
(Varimax Rotation): Demographic Variables\*

Variables	Factors	
	I	II
Parent Occupation	.75	
Economic Level	.73	
Age	-.70	
Last Grade Completed		.74
Gender		-.72

\*Only those loadings greater than .40 are shown.

economic background were able to attend college at a younger age, and were able to progress more rapidly through college, whereas students from poorer backgrounds may have been forced to postpone college, or to progress more slowly through college owing to a relatively greater need to work in order to support themselves. Factor 1 will be referred to, simply, as Parent Occupational Status and Income, Age. Factor 2 exhibited high positive loadings on "last grade completed" and high negative loadings on gender (which was coded for data analysis "1" for males and "2" for females). This suggests that, in this sample, males were more likely to have reached a higher educational attainment than did females. Factor 2 will be referred to simply as Sex and Education.

Table 6 shows a second-order principal components analysis rotated to the orthogonal varimax criterion for the first-order factors from the factor analyses of Tables 5A through 5D. In this table (Table 6), coded abbreviations for the first-order factors are used, for example, the "F." in "F.Att1" indicates that this is a first-order factor variable, the "Att" indicates that it came from the factor analysis on the "values and attitudes" variables (Table 5C), and the "1" following "Att" indicates that this factor variable represents factor 1 from that factor analysis. Below each of these codes, the names of each factor are provided. The pole of each factor name that relates positively to the original (first-order) factor is underlined.

These four second-order factors account for 54% of the total variance from the first-order factor scores, and no second-order fac-

TABLE 6

Second-Order Principal Components Analysis  
(Varimax Rotation) of Factors from Separate Factor  
Analyses on Personality, Life Satisfaction, Demo-  
graphic, and Values and Attitudes (Political, Religious) Variables\*

Factor Variables**	Second-Order Factors			
	I	II	III	IV
<u>F.Att1</u> ( <u>Presence/Absence of Religious Orientation</u> )***	.68			
<u>F.Sat1</u> ( <u>Presence/Absence of Positive Sense of Well-Being</u> )	.64			
<u>F.Per1</u> ( <u>Denial vs. Expression of Aggression</u> )	.59			
<u>F.Dem2</u> (Sex and Education: <u>males and higher education vs. females and lower education</u> )		.77		
<u>F.Per3</u> ( <u>Self-Oriented vs. Other-Oriented</u> )		.66		
<u>F.Att2</u> ( <u>Liberalism vs. Conservatism</u> )		-.47		
<u>F.Per2</u> ( <u>External Control vs. Independence</u> )			-.77	
<u>F.Dem1</u> (Parent Occupational Status and Income, Age: <u>higher parent occ. and income, lower age vs. lower parent occ. and income, higher age</u> )			.75	
<u>F.Per4</u> ( <u>Internal Control vs. Self Responsible for Negative Events</u> )				.76
<u>F.Sat2</u> ( <u>Satisfaction with Significant Relationships vs. Negative Affect</u> )				.69

\*Only loadings greater than .40 are shown.

\*\*Factor variable abbreviations: "F." indicates a first-order factor variable, followed by an abbreviation for the factor analysis it came from ("Per"-personality variables factor analysis, table 5A; "Sat"-life satisfaction variables factor analysis, table 5B; "Att"-values and attitudes factor analysis, table 5C; "Dem"-demographic variables factor analysis, table 5D), followed by its factor number from that analysis.

\*\*\*The pole of the factor name reflecting the positive pole of the original factor is underlined.



tor had an eigenvalue of less than 1.0.

The main value of this second-order factor analysis of potential correlates of nuclear war/weapons attitudes is that it demonstrates the relationships between the first order factors - particularly, it makes clear the patterns of statistical relatedness and independence between these factors.

For future reference, these second-order factors will be coded and abbreviated as follows: all will begin with "2F" (to indicate a second-order factor), followed by a hyphen and the number of the second-order factor from Table 6 (1 to 4), followed in parentheses by the first order factors (separated by slashes) that load on it. For example, second order factor 3 would be coded "2F-3(Per2/Dem1)".

As brief names did not seem to provide adequate descriptions of these second-order factors, they will be named on the basis of the relevant poles of the first-order factors that load on them. Therefore, second-order factor 1 (2F-1[Att1/Sat1/Per1]) will be referred to as Presence of Religious Orientation/Presence of Well-Being/Denial of Aggression. Second-order factor 2 (2F-2[Dem2/Per3/Att2]) will be referred to as Male Gender-Higher Education/Self-Orientation/Conservatism. Second-order factor 3 (2F-3[Dem1/Per2]) will be named Higher Parent Occupation and Economic Level-Lower Age/Independence, and second-order factor 4 (2F-4[Per4/Sat2]) will be referred to as Internal Control/Satisfaction with Significant Relationships.

## Relationship of NWOM to Other Variables

### Correlations between Nuclear War/Weapons Attitudes and Personality, Demographic, Life Satisfaction, and Political and Religious Variables

Table 7 shows product-moment correlations between NWOM factor scores and personality, demographic, life satisfaction, and political and religious variables. The correlates on Table 7 were organized by their second- and first-order factors.

The absolute magnitudes of the significant correlations on Table 7 are low, with the highest significant correlation (between F.Att2, the liberalism/conservatism factor, and NWOM factor 2, for males) of  $r = -.46$  ( $p \leq .001$ ), and the lowest significant correlation (at the  $p \leq .05$  level) of  $r = .10$ . Thus, the amount of shared variance between nuclear war/weapons attitudes (as measured by NWOM factors) and the correlates employed in this study (i.e.,  $r^2$  for the correlations significant at or below the .05 alpha level) ranged from a low of 1% to a high of 21%.

The possibility of Type I error on Table 7 due to the interpretation of significant correlations that occurred by chance was minimized, both because of the focus on the interpretation of correlations carrying non-redundant information on that table, and because of the use of rules to determine which correlations to interpret. The correlations obtained for the second-order and first-order factors (from the "Correlates" column of Table 7) can be seen as

TABLE 7  
Correlates of KWOM Factor Scales: Personality,  
Demographic, Life Satisfaction, and Values and Attitudes  
Variables, grouped by their Second- and First-Order Factors

Correlates <sup>1</sup>	KWOM Factor Scales											
	1			2			3			4		
	Unil Men	Red vs Women	Bld/Mtn All	Soviet Mach.			Bilateral Reduct.			Likelihood N-war		
I 2F-1(Act1/Sat1/Per1) (Religious Orientation/Presence of Well-Being/Denial of Aggression)	.20	.15*	.17**	-.14	-.05	-.07	.14	.16**	.17**	.03	-.03	-.01
1) F.Act1 (Presence/Absence of Religious Orientation)	.20**	.08	.12*	.02	.13*	.09	-.02	.04	.02	-.12	-.10	-.10
a) Importance of Religion	.11	.12*	.11*	.13	.09	.10*	.04	.00	.01	-.01	-.07	-.05
b) Belief in Afterlife	.19*	.04	.09	-.02	.11	.07	-.04	.06	.02	-.03	-.03	-.04
2) F.Sat1 (Presence/Absence Sense of Well-Being)	.18	.08	.09	-.16	-.06	-.09	.14	.13*	.13*	.18	.09	.10
a) Bradburn Positive Affect Scale	.23*	.03	.11*	-.27**	-.03	-.09	.11	.12*	.12*	.28**	-.05	.07
b) Satisfaction: Non-working Activities	.10	.02	.01	-.13	-.10	-.11*	-.12	.08	.01	.02	.17**	.08
c) Satisfaction: Health	.03	.01	-.01	-.10	-.01	-.04	.24*	.02	.08	.06	.20**	.12*
3) F.Per1 (Denial vs. Expression of Aggression)	.13	.12	.14*	-.36**	-.15*	-.21***	.04	.06	.06	.07	-.04	.02
a) Reversal (DMI)	.13	.10	.12*	-.22*	-.13*	-.16**	.02	.09	.07	.02	.05	.06
b) Principialization (DMI)	.20	.03	.09	-.37**	-.15*	-.20**	.01	.07	.05	.14	-.06	.02
c) Turning Against Others (DMI)	-.11	-.16*	-.16**	-.33**	-.15*	-.19**	.02	-.06	-.04	-.08	.08	.02
d) Projection (DMI)	-.09	-.02	-.06	.32**	.07	.14*	-.14	.00	-.05	-.04	-.02	-.06
e) DMI-AGG (DMI Composite Aggression score)	-.11	-.12	-.14*	.36**	.14*	.20**	-.06	-.04	-.05	-.07	.05	-.01
II 2F-2(Dem2/Per3/Att2) (Male Gender - Higher Education/ Self-Orientation/Conservatism)	.00	-.03	-.12*	.04	.01	.03	-.23*	-.19**	-.18**	.12	.02	-.11
1) F.Dem2 (Sex and Education)	.20*	.02	-.07	-.03	-.07	-.06	.01	-.07	-.04	-.08	.01	-.19**
a) Gender	—	—	.17**	—	—	.03	—	—	.01	—	—	.25***
b) Last Grade Completed	.19	.01	.06	-.03	-.14*	-.11*	-.01	-.11	-.08	-.05	.03	-.03
2) F.Per3 (Self- vs. Other-Orientation)	.04	.02	-.03	-.14	-.02	-.05	-.36**	-.20**	-.25***	.10	.01	-.05
a) M-F Scale (PAQ)	-.08	-.05	-.11*	-.08	-.09	-.09	-.25**	-.12*	-.16**	-.02	-.01	-.08
b) Feaminity Scale (PAQ)	.06	-.02	.05	.09	.03	.05	.36***	.23***	.27***	-.03	.06	.08
3) F.Att2 (Liberalism vs. Conservatism)	.20*	.16**	.19***	.46***	.12*	-.21***	.16	.12*	.13*	.04	-.05	.00
a) Political Liberalism	.23*	.14*	.19***	.41***	.10	-.19***	.09	.09	.09	-.12	-.08	-.06
b) Political Conservatism	-.02	-.13*	-.10	.24*	.11	.15**	-.16	-.08	-.11*	-.17	-.01	-.08
c) Composite Conservatism Score	-.25*	-.19**	-.22***	.37***	.08	.17**	-.20*	-.22***	-.21***	.15	.05	-.03
III 2F-3(Dem1/Per2) (Higher Parent Occupation and Economic Level-Lower Age/ Independence)	.04	-.13*	-.10	-.35**	-.11	-.16**	.11	.00	.02	-.19	-.03	-.07
1) F.Dem1 (Parent Occupational Status and Income, Age)	.08	-.04	-.01	-.34**	-.12*	-.16**	.04	-.09	-.06	-.18	.02	-.02
a) Parent Occupation	.16	-.01	.02	-.27**	-.05	-.11*	.12	-.03	.01	-.23*	.02	-.07
b) Economic Level	.04	-.06	-.04	-.20*	-.05	-.09	-.08	-.06	-.07	-.11	-.03	-.04
c) Composite Economic Level	.15	-.03	-.01	-.33**	-.05	-.12*	.08	-.06	-.03	-.23*	-.01	-.08
d) Age	.06	.02	.04	.22*	.17**	.18**	-.03	.10	.07	-.04	-.06	-.01
2) F.Per2 (External Control vs. Independence)	.08	.14*	.12*	.09	.10	.09	-.11	-.05	-.07	.15	.12	.13*
a) Powerful Others (LOC)	.08	.10	.07	.13	.14*	.13*	-.13	-.13*	-.13**	.04	.07	.03
b) Chance (LOC)	.17	.13*	.12*	.19*	.08	.10*	-.10	.02	-.02	.28**	.12*	.12*
c) Masculinity (PAQ)	.02	-.10	-.11*	-.01	.01	-.01	.12	-.02	.03	.06	-.05	-.08
IV 2F-4(Per4/Sat2) (Internal Control/Satisfaction with Significant Relationships)	.06	-.10	-.06	.15	-.14*	-.07	-.07	.06	.02	.08	-.05	-.02
1) F.Per4 (Internal Control vs. Self Responsible for Negative Events)	.01	.01	.00	.13	-.09	-.04	-.06	.10	.06	.00	.00	-.01
a) Internal Control (LOC)	-.15	.02	-.03	.03	-.09	-.05	-.01	.14*	.09	-.15	-.12*	-.13*
b) Turning Against Self (DMI)	-.10	.09	.05	-.16	.03	-.02	.09	-.08	-.03	-.01	-.09	-.06
2) F.Sat2 (Satisfaction with Significant Relationships vs. Negative Affect)	-.02*	-.19**	-.15**	.11	-.05	-.01	-.05	-.09	-.08	-.03	-.08	-.09
a) Bradburn Negative Affect Scale	.00	.23***	.17**	.03	.04	.04	.06	.09	.08	-.03	.05	.05
b) Satisfaction: Family Life	.02	-.02	-.01	.09	-.02	.00	.05	.07	.06	.08	-.04	-.02
c) Satisfaction: Friendships	.08	.05	.05	.04	-.06	-.03	.06	.11	.09	.21*	-.04	.02
d) Satisfaction: Life as a whole	.16	-.07	.01	-.01	-.08	-.06	.09	-.07	-.02	.00	-.05	-.04

\*p<.05 \*\*p<.01 \*\*\*p<.001

<sup>1</sup>Second-order factors were represented on this table beginning with the prefix "2F" (to indicate that the variable is a second-order factor), followed by a hyphen, and then a number (the number of the factor from the second-order factor analysis of table 6), followed in parentheses by the first-order factors that comprise that second-order factor.

TABLE 7 (Continued)

Correlates	KWM Factor Scales											
	5			6			7			8		
	Pro/Anti N-war Prep.			Prob. Prolif. Use			N-war Conseq. Mngabl.			Worry N-war		
	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women	All
I <u>2F-1(Att1/Sat1/Per1)</u> (Religious Orientation/Presence of Well-Being/Denial of Aggression)	-.02	-.11	-.09	-.09	.00	-.03	.04	-.04	-.02	.27*	.05	.12*
1) <u>F.Att1</u> (Presence/Absence of Religious Orientation)	-.14	-.06	-.08	.01	-.10	-.06	.07	-.12*	-.05	.36***	.15*	.22***
a) Importance of Religion	-.01	.03	.02	.10	-.13*	-.05	-.05	-.02	-.03	.41***	.13*	.22***
b) Belief in Afterlife	-.23*	-.15*	-.18**	.00	-.05	-.04	.00	-.19**	-.13*	.22*	.13*	.16**
2) <u>F.Sat1</u> (Presence/Absence Sense of Well-Being)	-.02	.05	.03	-.13	.04	.00	-.01	.05	.04	-.10	.00	-.03
a) Bradburn Positive Affect Scale	-.04	.13*	.08	-.09	-.06	-.08	.00	.10	.04	-.03	.09	.06
b) Satisfaction: Non-working Activities	-.15	.04	.00	-.10	.07	.04	.14	-.01	.07	-.07	-.01	-.04
c) Satisfaction: Health	.08	-.07	-.02	-.18	.05	.00	-.12	-.02	-.02	-.09	-.12*	-.12*
3) <u>F.Per1</u> (Denial vs. Expression of Aggression)	.00	-.12	-.10	-.04	.01	-.02	-.10	-.05	-.08	.08	-.01	.02
a) Reversal (DMI)	.00	-.03	-.03	-.01	-.02	-.03	-.20	-.03	-.08	.07	-.02	.01
b) Principialization (DMI)	.09	-.07	-.04	-.08	.09	.03	.05	-.02	-.02	.09	-.05	-.01
c) Turning Against Others (DMI)	-.06	.10	.10	.03	-.02	.01	.12	.08	.10	-.01	.02	.01
d) Projection (DMI)	-.02	.15*	.12*	.04	.06	.07	.08	.02	.05	-.10	-.03	-.06
e) DMI-AGG (DMI Composite Aggression score)	.03	.15*	.13*	.04	.02	.04	.11	.06	.09	-.05	.00	-.03
II <u>2F-2(Dea2/Per3/Att2)</u> (Male Gender - Higher Education/Self-Orientation/Conservatism)	-.01	-.07	.01	.00	-.07	.05	.16	-.07	.09	-.21	-.14*	-.16**
1) <u>F.Dea2</u> (Sex and Education)	-.03	-.03	.02	-.17	-.10	.02	.17	-.03	.15**	-.26**	-.10	-.15**
a) Gender	—	—	-.05	—	—	-.14**	—	—	-.17**	—	—	.06
b) Last Grade Completed	-.01	.06	.04	-.19	-.16*	-.15**	.17	-.06	.05	-.26*	-.13*	-.18**
2) <u>F.Per3</u> (Self- vs. Other-Orientation)	-.15	.00	-.01	.07	.09	.12*	.08	-.11	.01	-.13	.02	-.05
a) M-F Scale (PAQ)	-.12	.03	.01	-.04	.11	.10*	.00	.00	.05	-.26**	-.03	-.11*
b) Femininity Scale (PAQ)	-.09	.10	.03	-.04	-.06	-.08	-.14	.05	-.06	-.07	-.09	-.07
3) <u>F.Att2</u> (Liberalism vs. Conservatism)	-.36***	-.03	-.13*	-.14	.12*	.02	.03	.02	.00	.05	.07	.07
a) Political Liberalism	-.27**	.06	-.04	-.21*	.08	-.03	.21*	.04	.08	.20*	.01	.07
b) Political Conservatism	.21*	.08	.13*	-.04	-.11	-.07	.19*	-.03	.06	.13	-.10	-.02
c) Composite Conservatism Score	.15	.04	.07	.25*	-.08	.05	.11	.02	.06	.08	-.07	-.02
III <u>2F-3(Dea1/Per2)</u> (Higher Parent Occupation and Economic Level-Lower Age/Independence)	-.42***	.16*	.05	-.29*	-.02	-.08	-.07	.03	.02	-.25*	.05	-.02
1) <u>F.Dea1</u> (Parent Occupational Status and Income, Age)	-.19*	.28***	.18***	-.08	-.07	-.07	-.05	.05	.03	-.01	.04	.03
a) Parent Occupation	-.22*	.18**	.08	-.07	-.02	-.01	-.05	.08	.05	.02	.07	.05
b) Economic Level	-.08	.16*	.10*	-.06	.04	.02	.09	.04	.06	-.16	.00	-.04
c) Composite Economic Level	-.21*	.19**	.11*	-.12	.00	-.01	-.03	.07	.06	-.06	.06	.02
d) Age	.05	-.28***	-.23***	.03	.17**	.12*	.18	.00	.01	-.16	.00	-.02
2) <u>F.Per2</u> (External Control vs. Independence)	.25*	-.04	.03	.22*	.02	.08	.13	.01	.04	.24*	.01	.07
a) Powerful Others (LOC)	.10	-.04	.01	.16	.00	.06	.12	.03	.08	.14	.02	.05
b) Chance (LOC)	.09	-.06	-.02	.04	-.01	.02	.17	.05	.11*	.19*	.06	.08
c) Masculinity (PAQ)	-.07	.06	.04	-.01	.11	.11*	-.14	.03	.02	-.23*	-.03	-.10*
IV <u>2F-4(Per4/Sat2)</u> (Internal Control/Satisfaction with Significant Relationships)	-.02	.09	.06	-.04	.16*	.11	.14	.03	.06	.04	-.17*	-.12*
1) <u>F.Per4</u> (Internal Control vs. Self Responsible for Negative Events)	.17	.10	.12*	-.02	.15*	.11	.10	.05	.06	.14	-.06	-.02
a) Internal Control (LOC)	.18	-.01	.04	-.02	.12*	.08	-.04	-.09	-.07	-.06	.00	-.02
b) Turning Against Self (DMI)	-.14	-.17*	-.17**	.00	-.09	-.07	-.04	-.06	-.07	-.05	.07	.04
2) <u>F.Sat2</u> (Satisfaction with Significant Relationships vs. Negative Affect)	.03	.06	.06	-.01	.11	.08	.12	.01	.06	.04	-.15*	-.10*
a) Bradburn Negative Affect Scale	-.01	-.07	-.06	.04	-.05	-.03	-.10	.00	-.04	-.05	.12*	.07
b) Satisfaction: Family Life	.11	.04	.05	.06	.06	.07	.04	.01	.02	-.06	.00	-.02
c) Satisfaction: Friendships	-.03	.14*	.09	-.09	.04	.00	.04	.06	.06	.08	-.07	-.03
d) Satisfaction: Life as a whole	.03	.03	.03	-.07	.14*	.07	.06	.13*	.10*	-.12	-.10	-.11*

TABLE 7 (Continued)

Correlates	NWOM Factor Scales									Number of Subjects		
	9			10			13					
	Safety Sparse, Areas			Potency Prev. M-war			Ignor. Dest. Pot'l			Men	Women	All
I 2F-1(Att1/Sat1/Per1) (Religious Orientation/Presence of Well-Being/Denial of Aggression)	-.20	.08	.00	.39**	.17*	.23***	.33**	.08	.16**	56	153	209
1) F.Att1 (Presence/Absence of Religious Orientation)	-.02	-.05	-.04	.13	.13*	.13*	.25**	-.02	.07	75	193	268
a) Importance of Religion	-.06	-.09	-.08	.05	.03	.03	.17	.09	.11*	76	197	273
b) Belief in Afterlife	.16	.02	.06	.17	.18**	.17**	.15	-.11	-.03	76	196	272
2) F.Sat1 (Presence/Absence Sense of Well-Being)	-.18*	.01	-.03	.21*	.11	.14**	.20*	-.05	.02	76	195	271
a) Bradburn Positive Affect Scale	-.04	-.02	-.03	.23*	.14*	.16**	.20*	.05	.10*	76	195	271
b) Satisfaction: Non-working Activities	.00	.05	.05	.08	.06	.07	.10	-.04	-.01	76	197	273
c) Satisfaction: Health	-.23*	.02	-.03	.06	.00	.02	.11	-.08	-.04	75	197	272
3) F.Per1 (Denial vs. Expression of Aggression)	-.24*	.17*	.05	.33**	.06	.12*	.10	.08	.09	56	153	209
a) Reversal (DMI)	-.24*	.17*	.05	.22*	.08	.11	-.01	.13*	.10	56	153	209
b) Principialization (DMI)	-.17	.08	.01	.32**	.03	.09	.09	-.08	-.03	56	153	209
c) Turning Against Others (DMI)	.16	-.18**	-.09	-.30**	.04	-.04	-.07	-.08	-.08	56	153	209
d) Projection (DMI)	.27*	-.05	.05	-.29*	-.12	-.14*	-.13	-.08	-.10	56	153	209
e) DMI-ACG (DMI Composite Aggression score)	.23*	-.15*	-.04	-.33**	-.04	-.10	-.11	-.10	-.11	56	153	209
II 2F-2(Dem2/Per3/Att2) (Male Gender - Higher Education/Self-Orientation/Conservatism)	-.03	.02	.07	-.06	-.02	.03	.08	.15*	.05	56	153	209
1) F.Dem2 (Sex and Education)	-.11	-.01	.03	.08	.15*	.11*	.22*	.03	.02	76	194	270
a) Gender	—	—	-.08	—	—	-.04	—	—	.06	—	—	273
b) Last Grade Completed	-.15	-.03	-.06	.08	.13*	.11*	.19	.00	.06	69	168	237
2) F.Per3 (Self- vs. Other-Orientation)	.03	.08	.10	-.20	-.09	-.08	-.18	.04	-.05	56	153	209
a) M-F Scale (PAQ)	-.03	.00	.02	-.12	.07	.03	-.06	.01	-.03	75	196	271
b) Femininity (PAQ)	.02	-.15*	-.11*	.15	.16**	.14**	-.09	.03	.09	75	196	271
3) F.Att2 (Liberalism vs. Conservatism)	-.02	.14*	.09	.10	.13*	.11*	-.13	-.14*	-.13*	75	193	268
a) Political Liberalism	.23*	.12*	.01	.11	.10	.10	.07	-.09	-.04	75	196	271
b) Political Conservatism	-.17	-.09	-.11*	-.01	-.07	-.04	.28**	.09	.15**	76	195	271
c) Composite Conservatism Score	-.10	-.07	-.07	-.03	-.09	-.07	.07	-.05	-.01	75	193	268
III 2F-3(Dem1/Per2) (Higher Parent Occupation and Economic Level-Lower Age/Independence)	-.26*	-.20**	-.21***	.16	.10	.11*	.06	-.20**	-.14*	56	153	209
1) F.Dem1 (Parent Occupational Status and Income, Age)	-.26**	-.08	-.11*	-.11	-.01	-.03	.02	-.17**	-.13*	76	194	270
a) Parent Occupation	-.09	-.05	-.05	-.04	.08	.05	.16	-.14*	-.07	76	190	266
b) Economic Level	-.36**	-.06	-.12*	-.12	-.05	-.06	.01	-.08	-.06	75	195	270
c) Composite Economic Level	-.26**	-.06	-.09	-.11	.03	.00	.13	-.14*	-.08	75	189	264
d) Age	.04	.07	.06	.06	.04	.04	.21*	.15*	.16**	76	197	273
2) F.Per2 (External Controls vs. Independence)	.09	.27***	.22***	-.21	-.19**	-.19**	-.22	.14*	.05	56	153	209
a) Powerful Others (LOC)	.21*	.19**	.21***	-.15	-.11	-.12*	.05	.23***	.17**	76	195	271
b) Chance (LOC)	.10	.17**	.17**	-.12	-.16**	-.14**	-.03	.17**	.11*	76	195	270
c) Masculinity (PAQ)	-.07	-.20**	-.13**	.02	.07	.06	.06	.04	.03	75	196	271
IV 2F-4(Per4/Sat2) (Internal Control/Satisfaction with Significant Relationships)	.03	.05	.05	-.06	.17*	.12*	-.09	-.12	-.11*	56	153	209
1) F.Per4 (Internal Control vs. Self Responsible for Negative Events)	.00	.08	.07	.04	.12	.11	-.01	-.10	-.08	56	153	209
a) Internal Control (LOC)	-.05	.06	.03	.10	.23***	.19***	.10	-.12*	-.06	76	195	271
b) Turning Against Self (DMI)	-.04	.02	.00	.14	-.05	-.02	.17	.10	.12*	56	153	209
2) F.Sat2 (Satisfaction with Significant Relationships vs. Negative Affect)	.00	-.04	-.02	-.11	.08	.03	-.13	-.09	-.11*	76	195	271
a) Bradburn Negative Affect Scale	-.02	.02	.00	.10	-.08	-.03	.11	.04	.06	76	194	270
b) Satisfaction: Family Life	-.34**	-.01	-.07	-.02	.17**	.13*	-.04	-.07	-.06	76	197	273
c) Satisfaction: Friendships	-.08	-.03	-.04	.23*	.11	.14**	.09	-.04	-.01	76	197	273
d) Satisfaction: Life as a whole	.01	-.05	-.04	.00	.06	.04	.05	-.15*	-.09	76	197	273

reflecting the relationships with nuclear war/weapons attitudes of their component variables, which are also displayed on Table 7; moreover, the correlations in the "All" column on Table 7 can be viewed as dependent on the correlation coefficients obtained for males and females separately. The correlations for the non-synthetic "Correlates" variables, for males and females separately, thus formed the basis for interpreting these data. The number of these correlations (i.e., between component "correlate" variables and NWOM factors, for both males and females), corrected for the "Gender" row, in which only the "All" column was used, was 649 (i.e., 30rows X 22columns - 11). Thus, approximately 32 (i.e.,  $.05 \times 649$ ) of these non-redundant correlations significant at the .05 alpha level would be expected to occur by chance alone, and approximately 6 correlations significant at the .01 level ( $.01 \times 649$ ) might similarly be expected to occur by chance (alternately, if one calculated the number of expected correlations to spuriously obtain significance at or below the .05 alpha level solely for the "All" columns of the non-synthetic variables, it would come to  $.05 \times [30\text{rows} \times 11\text{columns}]$ , or approximately 16 correlations occurring by chance alone).

In addition to this focus on the correlations with NWOM factors of the non-synthetic (i.e., non-factor) correlates for males and females, Type I error was further minimized by using the following interpretation rules: all correlations at or below the .01 alpha level

were reported and interpreted; and correlations significant at the .05 alpha level were reported and interpreted only if they occurred at or below that level for the same pair of variables for both males and females, or were part of a constellation of findings for similar variables which included findings at or below the .01 alpha level. Thus, relatively isolated instances of significance at the .05 alpha level on Table 7 were ignored.

The following results analysis of Table 7 was organized by NWOM factor scales.

NWOM Factor 1: Unilateral Nuclear Weapons Reductions versus  
Maintaining/Building up Nuclear Weapons

A) Results applying to both sexes:

-Self-rating of political liberalism (on a 5-point scale) were directly related to scores on NWOM Factor 1; in other words, political liberalism was directly related to advocacy of unilateral reductions in nuclear weapons. Composite Conservatism scores (conservatism self-rated on a 5-point scale, minus the liberalism self-rating, plus a constant if Republican, minus a constant if Democrat) were inversely related to scores on NWOM Factor 1; in other words, the higher composite conservatism score, the greater the advocacy of building up nuclear weapons or maintaining them at current

levels.

B) Results applying to males only:

NONE

C) Results applying to females only:

-Scores on Turning Against Others (the DMI) were inversely related to scores on the NWOM Factor 1; in other words, the greater the style of expression of (as opposed to denial of) aggressive impulses, the greater the advocacy of maintaining/building up nuclear weapons.

-Scores on the Bradburn Negative Affect Scale were directly related to NWOM Factor 1; in other words, the higher the negative affect, the greater the advocacy of unilateral reductions in nuclear weapons.

D) Specific results that differed markedly for males and females:

-Gender (males were coded "1" for data analysis, females were coded "2") was directly related to NWOM Factor 1; in other words, females as a group advocated unilateral reductions in nuclear weapons more strongly than did males.

NWOM Factor 2: Perceived Soviet Machiavellianism

A) Results applying to both sexes:

-For both sexes (but less strongly for females); scores on Reversal and Principalization of the DMI (the aggression-denying defenses) were inversely related to scores on



NWOM Factor 2; in other words, high scores on Reversal and Principalization were associated with perceptions of the Soviets as not amoral and politically ruthless, and as interested in peaceful relations with the West. Scores on Turning Against Others were directly related to scores on NWOM Factor 2; in other words, a style of expression of aggressive impulses was directly related to perceptions of the Soviets as machiavellian (in the sense of being politically ruthless and amoral).

-Age was found to vary directly with NWOM Factor 2; in other words, the older the subject, the greater the perception of Soviets as ruthless and politically amoral.

B) Results applying to males only:

-Scores on Projection of the DMI (the style of expressing aggressive impulses associated with imputation of aggressive intent to the object of aggression) were directly related to scores on NWOM Factor 2; in other words, the higher the score on Projection, the greater the perception of the Soviets as ruthless and politically amoral.

-Self-ratings of political liberalism (on a 5-point scale) were strongly and inversely related to NWOM Factor 2; in other words, the more liberal the (male) subject, the less machiavellian the Soviets were perceived as being. Conservatism (both self-rated and the composite measure which subtracted liberalism and took account of political party) was

found to be directly related to NWOM Factor 2; in other words, the greater the conservatism, the more the Soviets were perceived as amoral, ruthless and threatening.

-parent occupational status (ranging from unskilled blue collar to highly skilled white collar) and family-of-origin economic level (self-rated on a five-point scale) were both inversely related to NWOM Factor 2; in other words, higher parent occupational status, and higher economic level were both associated with lower perceptions of Soviet Machiavellianism.

-Scores on the Bradburn Positive Affect Scale were inversely related to NWOM Factor 2; in other words, the higher the degree of positive affect, the less the Soviets were perceived as politically amoral and ruthless.

C) Results applying to females only:

NONE

D) Specific results that differed markedly for males and females:

NONE

### NWOM Factor 3: Pro/Anti Bilateral Nuclear Weapons Reductions

A) Results applying to both sexes:

-Scores on Femininity (which involves an orientation towards and a nurturing of others) were found to be directly related to NWOM Factor 3, whereas scores on M-F (which measures a kind of self-orientation) were found to be inversely related to

NWOM Factor 3. This pattern also reflected itself in the first-order factor of these two variables, Personality Factor 3 (F.Per3 - Self versus Other Orientation), which was negatively related to NWOM Factor 3. In other words, the greater the score on Femininity, the greater the advocacy of bilateral nuclear weapons reductions between the US and the Soviet Union; conversely, the greater the scores on M-F (for which high scores would indicate self-perceptions as relatively unemotional, low approval seeking, high dominance and aggression), the less the advocacy of bilateral reductions in nuclear weapons between the US and the Soviet Union.

-For both males and females (although considerably more for females) composite conservatism scores were inversely related to NWOM Factor 3; in other words, the more conservative (subtracting liberalism and taking account of political party), the less the advocacy of nuclear weapons reductions.

B) Results applying to males only:

NONE

C) Results applying to females only:

-Scores on Locus of Control-Powerful Others were inversely related to NWOM Factor 3; in other, the greater the belief that significant rewards are controlled by powerful others, the less the advocacy of bilateral nuclear weapons reductions.

D) Specific results that differed markedly for males and females

NONE

NWOM Factor 4: Likelihood of Nuclear War

A) Results applying to both sexes:

-For both sexes (although more strongly for males), scores on Locus of Control-Chance were directly related to NWOM Factor 4; in other words, the the greater the belief that significant rewards are controlled by chance, the greater the perceived likelihood of nuclear war.

B) Results applying to males only:

-Scores on the Bradburn Positive Affect Scale were directly related to scores on NWOM Factor 4; in other words, the greater the degree of positive affect, the greater the perceived likelihood of nuclear war.

C) Results applying to females only:

-Ratings on the 7-point scale of the item "How satisfied are you with your non-working activities - hobbies and so on," were directly related to scores on NWOM Factor 4; also, ratings on the 7-point scale of the item measuring satisfaction with health were directly related, as well, to scores on NWOM Factor 4. In other words, the more satisfied with non-working activities and hobbies, and the more satisfied with health, the greater the perceived likelihood of nuclear war.

D) Specific results that differed markedly for males and females:

-Gender (coded "1" for males, "2" for females) was directly related to NWOM Factor 4; in other words, females perceived a greater likelihood for nuclear war than did males.

NWOM Factor 5: Pro/Anti Preparations aimed at Surviving Nuclear War

A) Results applying to both sexes:

-Ratings on the item measuring belief in an afterlife (which had a 5-point rating scale) were inversely related to NWOM Factor 5; in other words, strong self-rated belief in afterlife was associated with the position of being opposed to preparations aimed at enhancing population survivability in the event of nuclear war (such as educating people for survival and building underground shelters).

B) Results applying to males only:

-Self-rated political liberalism was found to be inversely related to NWOM Factor 5; in other words, the higher the level of liberalism, the lower the advocacy of preparations for surviving nuclear war. Conversely, self-rated conservatism was directly related to NWOM Factor 5; thus, the more conservative, the greater the advocacy of preparations for nuclear war.

C) Results applying to females only:

-Self-rated economic level was directly related to NWOM

Factor 5; thus, the higher the economic level, the greater the advocacy of preparations aimed at enhancing population survivability in the event of nuclear war.

-Age was strongly and inversely related to NWOM Factor 5; as age of women rose, advocacy of (population survival-oriented) preparatory activities for nuclear war decreased.

-Scores on Turning Against Self (DMI) were inversely related to scores on NWOM Factor 5; the greater the score on Turning Against Self (i.e., the greater the tendency towards self-blame, self-doubt and feelings of inadequacy), the less the advocacy of preparations for surviving nuclear war.

D) Specific results that differed markedly for males and females:

-For males, parent occupational status was inversely related to scores on NWOM Factor 5; whereas for females, parent occupational status was directly related to scores on NWOM Factor 5. In other words, for males, the higher the parent occupational status (in the direction of skilled white collar) the lower was the advocacy of preparations for surviving nuclear war; whereas for females, the higher the parent occupational status, the greater was the advocacy of preparations aimed at surviving nuclear war.

NWOM Factor 6: Likelihood of Proliferative Use of Nuclear Weapons

A) Results applying to both sexes:

NONE

## B) Results applying to males only:

NONE

## C) Results applying to females only:

-Education was inversely related to scores on NWOM Factor 6; the higher the last grade completed, the lower the perceived likelihood that terrorists and/or small countries will obtain and use nuclear weapons.

-Age was directly related to NWOM Factor 6; as age (in women) increased, the greater was the perceived likelihood of the use of nuclear weapons by small countries and/or terrorists.

## D) Specific results that differed markedly for males and females:

-Gender (coded "1" for males, "2" for females) was inversely related to NWOM Factor 6; in other words, females viewed the procurement and use of nuclear weapons by small countries and terrorists as less likely than did males.

NWOM Factor 7: Perceived Manageability of the Consequences  
of Nuclear war

## A) Results applying to both sexes:

NONE

## B) Results applying to males only:

-A weak but interesting effect among males: self-ratings of both liberalism and of conservatism were (each) directly re-

lated to NWOM Factor 7; in other words, high self-ratings on liberalism and high self-ratings on conservatism were both associated with viewing the consequences of nuclear war as relatively manageable (in terms, for example, of the number of people surviving, personal chances of survival, and recovery of society from nuclear war).

C) Results applying to females only:

-Ratings on the "belief in afterlife" item were inversely related to scores on NWOM Factor 7; in other words, the greater the belief in an afterlife, the lower the expectations of the manageability of the consequences of nuclear war.

D) Specific results that differed markedly for males and females:

-Gender (coded "1" for males, "2" for females) was inversely related to NWOM Factor 7; in other words, males perceived the prospective consequences of nuclear war to be more potentially manageable than did females.

NWOM Factor 8: Worry about Nuclear War

A) Results applying to both sexes:

-For both sexes (although to a greater extent for males), religious orientation, as measured by Attitudes Factor 1 (F.Att1), was directly related to NWOM Factor 8; in other words, the greater the religious orientation (i.e., the greater the importance of religion and belief in an afterlife), the greater



the worry about the prospect of nuclear war.

-Education was inversely related to NWOM Factor 8; the higher the last grade completed, the lower the degree of worry about the prospect of nuclear war.

B) Results applying to males only:

-Scores on the M-F scale were inversely related to NWOM Factor 8; in other words, high scores on the M-F scale (which results from self-ratings as unemotional, having low need for approval, aggressive and dominant) were associated with a low degree of worry about nuclear war.

-Although a weak effect, scores on Locus of Control-Chance were directly related to NWOM Factor 8; in other words, the higher the belief that significant rewards in life are controlled by chance, the greater the worry about the prospect of nuclear war. Also, scores on Masculinity were inversely related to NWOM Factor 8; in other words, the more independent, self-confident, and tenacious (the qualities measured by the Masculinity scale), the less worried about nuclear war.

C) Results applying to females only:

NONE

D) Specific results that differed markedly for males and females:

NONE

NWOM Factor 9: Perceived Safety of Sparsely Populated Areas  
During Nuclear War

A) Results applying to both sexes:

-For males and females (although more strongly for females), scores on Locus of Control-Powerful Others, were directly related to scores on NWOM Factor 9; in other words, the greater the extent to which powerful others were viewed as responsible for the individual's ability to obtain significant rewards, the more that sparsely populated areas were viewed as potentially safe during nuclear war.

B) Results applying to males only:

-Self-ratings on economic level were inversely related to NWOM Factor 9; in other words, the higher the economic level, the less safe sparsely populated areas were viewed as being in the event of nuclear war.

-Ratings on a 7-point "satisfaction with family life" scale were inversely related to NWOM Factor 9; in other words, the higher the satisfaction with family life (which likely refers to family of origin, given the ages of these subjects), the less safe sparsely populated areas were viewed as being in the event of nuclear war.

C) Results applying to females only:

-Scores on Locus of Control-Chance were directly related to NWOM Factor 9; in other words, viewing significant rewards

as due to chance was directly related to perceptions that sparsely populated areas are safer in the event of nuclear war.

-Scores on Masculinity were inversely related to NWOM Factor 9; in other words, the greater the perception of self as independent, confident and tenacious (to summarize the content of the Masculinity items), the less safe sparsely populated areas were viewed as being in the event of nuclear war.

D) Specific results that differed markedly for males and females:

-For males, Personality Factor 1 (F.Per1) was inversely related to NWOM Factor 9; for females, Personality Factor 1 (F.Per1) was directly related to NWOM Factor 9. In other words, for males, denial of aggressive impulses was associated with viewing sparsely populated areas as not safer in the event of nuclear war (or, conversely, the expression of aggressive impulses was associated with viewing sparsely populated areas as more safe in the event of nuclear war); but for females, denial of aggressive impulses was associated with viewing sparsely populated areas as more safe in the event of nuclear war (or, conversely, the expression of aggressive impulses was associated with viewing sparsely populated areas as not safer).

-A weak but interesting effect: for males, self-rated liberalism was inversely related to scores on NWOM Factor 9; for females, self-rated liberalism was directly related to scores

on NWOM Factor 9. In other words, for males, liberalism was associated with viewing sparsely populated areas as not safer during nuclear war; whereas for females, liberalism was associated with viewing sparsely populated areas as more safe in the event of nuclear war.

NWOM Factor 10: Potency/Powerlessness to Prevent Nuclear War

A) Results applying to both sexes:

-Scores on the Bradburn Positive Affect Scale were directly related to NWOM Factor 10; in other words, the greater the level of positive affect, the greater the perception that one's actions can contribute to preventing nuclear war.

B) Results applying to males only:

-Scores on Satisfaction Factor 1 (F.Sat1) were directly related to NWOM Factor 10; in other words, for males, "presence of a sense of well-being" was directly related to the perception that one's actions can contribute to preventing nuclear war.

-Scores on Reversal and Principialization were directly related to NWOM Factor 10; and scores on Turning Against Other and on Projection were inversely related to NWOM Factor 10. In other words, scores reflecting high amounts of use of aggression-denying defenses (Reversal, Principialization) were associated with the perception that it is possible to take action that will contribute to making nuclear war less likely; conversely,

high scores on aggression-expressing defenses (Turning Against Others, Projection) were associated with the perception that one cannot take action which will contribute to preventing nuclear war.

-Ratings on "satisfaction with friendships" (a seven-point scale) were directly related to scores on NWOM Factor 10; in other words, a high degree of satisfaction with friendships was associated with the perception that one's actions can contribute to the prevention of nuclear war.

C) Results applying to females only:

-Responses to the item "belief in afterlife" were directly related to NWOM Factor 10; in other words, the greater the belief in an afterlife, the greater the belief that one can take action that will make nuclear war less likely.

-Scores on Femininity were directly related to NWOM Factor 10; in other words, there is a direct relationship between self-perceptions of being oriented to and nurturant of others, and belief that one's actions can make nuclear war less likely.

-Scores on Locus of Control-Chance were inversely related to NWOM Factor 10; in other words, the more that significant rewards in life were viewed as being controlled by chance events, the less the perception that one can contribute to making nuclear war less likely.

-Scores on Locus of Control-Internal were directly related to NWOM Factor 10; in other words, the more that significant

rewards were viewed as resulting from one's own efforts and abilities, the greater the perception that one can take action to make nuclear war less likely.

-The ratings on "satisfaction with family life" (a 7-point scale) were directly related to NWOM Factor 10; in other words, the greater the ratings of satisfaction with family life, the greater the perception that one can contribute to the prevention of nuclear war.

D) Specific results that differed markedly for males and females:

NONE

NWOM Factor 13: American Ignorance of the Destructive  
Potential of Nuclear Weapons

A) Results applying to both sexes:

-There was a weak direct relationship between age and NWOM Factor 13; higher age was associated with a greater tendency to view the American public as ignorant of the unique destructive potential of nuclear weapons.

B) Results applying to males only:

-Scores on Attitudes Factor 1 (F.At1 - presence/absence of religious orientation) were directly related to NWOM Factor 13; in other words, the greater the religious orientation, the greater the perception of the American people as ignorant of the unique destructive potential

of nuclear weapons.

-Self-rated conservatism was directly related to scores on NWOM Factor 13; in other words, the greater the self-rating of conservatism, the greater the perception of the American people as ignorant of the destruction capable of being caused by nuclear weapons.

C) Results applying to females only:

-There was a weak, inverse relationship between parent occupational status and NWOM Factor 13; that is, the higher the parent occupational status, the less that the American public was viewed as ignorant of the destructive potential of nuclear weapons.

-Scores on External Locus of Control (i.e., both on "Chance" and on "Powerful Others") were directly related to scores on NWOM Factor 13; thus, the greater the perception that that significant rewards are controlled externally, the more that Americans were viewed as ignorant of the destructive potential of nuclear weapons.

D) Specific results that differed markedly for males and females:

NONE

Multiple Regression Analyses: Prediction of NWOM Factor Scores

Tables 8A and 8B show stepwise multiple regression analyses for males and females, respectively, for predicting NWOM factor scores. In both of the analyses represented by these tables, missing data were replaced by means, and with the exception of "composite economic level," all correlate variables of Table 7 that were not synthetic variables obtained through factor analyses were used as predictors. Multiple correlations for males (Table 8A) ranged from a high of .64 to a low of .27, predicting amounts of variance in the criteria ranging from 41% to 7%. Multiple correlations for females (Table 8B) ranged from a high of .32 to a low of .19, predicting amounts of variance in the criteria ranging from 10% to 4%. These differences between males and females in the amount of variance in the criteria predicted may be somewhat inflated; there were more than twice as many females as males in this sample, and thus the greater cumulative error variance of the females may have lowered their correlations (as well as decreasing the magnitude of a correlation necessary for significance).

A considerable number of variables that had been significantly correlated with NWOM factors in Table 7 did not emerge as predictors in these regression equations, primarily because they were marginally significant to begin with (i.e., regarding their simple correlation with the NWOM factor), and they lost small, cumulative amounts of variance as the variance from the predictors in the equation was partialled out. In other cases, a finding that was marginally sig-



TABLE 8A  
Multiple Regression Analysis: Prediction of NWOM Factor Scores, Males Only<sup>1</sup>

Criterion Predictors	Beta weights	r	df	F	R	R <sup>2</sup>
<u>NWOM Factor 1: Unilateral Nuclear Weapons Reductions vs. Maintaining/Building up Nuclear Weapons</u>			1,74	4.25*	.23	.05
Political Liberalism	.23	.23				
<u>NWOM Factor 2: Perceived Soviet Machiavellianism</u>			3,72	10.07****	.54	.30
Composite Conservatism <sup>2</sup>	.37	.37				
Principalization (DMI)	-.26	-.37				
Parent Occupational Status	-.23	-.27				
<u>NWOM Factor 3: Pro/Anti Bilateral Nuclear Weapons Reductions</u>			2,73	8.41***	.43	.19
Femininity (PAQ)	.36	.36				
Composite Conservatism	-.24	-.20				
<u>NWOM Factor 4: Likelihood of Nuclear War</u>			3,72	7.52***	.49	.24
Bradburn Positive Affect Scale	.37	.28				
Locus of Control-Chance	.31	.28				
Parent Occupational Status	-.22	-.23				
<u>NWOM Factor 5: Pro/Anti Preparations aimed at Surviving Nuclear War</u>			1,74	5.73*	.27	.07
Political Liberalism	-.27	-.27				
<u>NWOM Factor 6: Likelihood of Proliferative Use of Nuclear Weapons</u>			No variables entered or removed			
<u>NWOM Factor 7: Perceived Manageability of the Consequences of Nuclear war</u>			No variables entered or removed			
<u>NWOM Factor 8: Worry about Nuclear War</u>			2,73	10.31****	.47	.22
Importance of Religion	.40	.41				
Last Grade Completed	-.23	-.26				
<u>NWOM Factor 9: Perceived Safety of Sparsely Populated Area during Nuclear War</u>			6,69	7.95****	.64	.41
Economic Level	-.31	-.36				
Satisfaction: Family Life	-.40	-.34				
Political Liberalism	-.25	-.23				
Satisfaction: Health	-.28	-.23				
Satisfaction: Non-working Activities	.33	.00				
Locus of Control-Powerful Others	.20	.21				
<u>NWOM Factor 10: Potency/Powerlessness to Prevent Nuclear War</u>			1,74	5.59*	.27	.07
Principalization (DMI)	.27	.32				
<u>NWOM Factor 13: American Ignorance of the Destructive Potential of Nuclear Weapons</u>			2,73	5.64**	.37	.13
Political Conservatism	.30	.28				
Age	.24	.21				

\*p≤.05    \*\*p≤.01    \*\*\*p≤.001    \*\*\*\*p≤.0001

<sup>1</sup>The predictors used were correlate variables from Table 7 above that were not synthetic variables obtained through factor analyses. The only variables meeting this description not used in this analysis was "Composite Economic Level" (comprised of the sum of "Economic Level" and "Parent Occupational Status").

<sup>2</sup>This variable was computed by subtracting self-rated liberalism from self-rated conservatism and then adding a constant if Republican, subtracting a constant if Democrat.

TABLE 8B

Multiple Regression Analysis: Prediction of NWOM Factor Scores, Females only<sup>1</sup>

Criterion Predictors	Beta weights	r	df	F	R	R <sup>2</sup>
<u>NWOM Factor 1: Unilateral Nuclear Weapons Reductions vs. Maintaining/Building up Nuclear Weapons</u>			3,193	6.85***	.31	.10
Bradburn Negative Affect Scale	.23	.23				
Composite Conservatism <sup>2</sup>	-.19	-.19				
Importance of Religion	.17	.12				
<u>NWOM Factor 2: Perceived Soviet Machiavellianism</u>			2,194	5.26**	.23	.05
Age	.18	.17				
Turning Against Others (DMI)	.15	.15				
<u>NWOM Factor 3: Pro/Anti Bilateral Nuclear Weapons Reductions</u>			2,194	9.56****	.30	.09
Femininity (PAQ)	.24	.23				
Composite Conservatism	-.20	-.22				
<u>NWOM Factor 4: Likelihood of Nuclear War</u>			2,194	6.63**	.25	.06
Satisfaction: Health	.23	.20				
Locus of Control-Internal	-.15	-.12				
<u>NWOM Factor 5: Pro/Anti Preparations aimed at Surviving Nuclear War</u>			2,194	10.52****	.31	.10
Age	-.27	-.28				
Turning Against Self (DMI)	-.14	-.17				
<u>NWOM Factor 6: Likelihood of Proliferative Use of Nuclear Weapons</u>			3,193	5.57***	.28	.08
Age	.19	.17				
Satisfaction: Life as a whole	.18	.14				
Last Grade Completed	-.16	-.16				
<u>NWOM Factor 7: Perceived Manageability of the Consequences of Nuclear War</u>			1,195	7.27**	.19	.04
Belief in Afterlife	-.19	-.19				
<u>NWOM Factor 8: Worry about Nuclear War</u>			No variables entered or removed			
<u>NWOM Factor 9: Perceived Safety of Sparsely Populated Areas during Nuclear War</u>			4,192	5.59***	.32	.10
Masculinity (PAQ)	-.16	-.20				
Reversal (DMI)	.17	.17				
Political Liberalism	.16	.12				
Locus of Control-Powerful Others	.16	.19				
<u>NWOM Factor 10: Potency/Powerlessness to Prevent Nuclear War</u>			2,194	7.47***	.28	.07
Locus of Control-Internal	.21	.23				
Belief in Afterlife	.14	.18				
<u>NWOM Factor 13: American Ignorance of the Destructive Potential of Nuclear Weapons</u>			3,193	6.44***	.30	.09
Locus of Control-Powerful Others	.27	.23				
Masculinity (PAQ)	.19	.04				
Satisfaction: Life as a whole	-.15	-.15				

\*p ≤ .05 \*\*p ≤ .01 \*\*\*p ≤ .001 \*\*\*\*p ≤ .0001

<sup>1</sup>The predictors used were correlate variables from Table 7 above that were not synthetic variables obtained through factor analyses. The only variable meeting this description not used in this analysis was "Composite Economic Level" (comprised of the sum of "Economic Level" and "Parent Occupational Status").

<sup>2</sup>This variable was computed by subtracting self-rated liberalism from self-rated conservatism and then adding a constant if Republican, subtracting a constant if Democrat.

nificant in Table 7 did not emerge as significant in the multiple regression analysis because the t-test for significance used in these analyses was stricter than the test for significance of correlation that had been used on the simple correlations of Table 7. In still other cases, a variable hadn't been included in a particular regression equation, but had factored (in the analyses of Tables 5A to 5D) with a variable that had been included in the equation. Any finding that was significant in the results analysis for Table 7 that did not enter into the regression equation in the corresponding regression analysis in Tables 8A or 8B was, if not specifically discussed directly below in this results section, absent for one or more of these three reasons.

For females, the Bradburn Negative Affect Scale, composite conservatism (self-rated liberalism subtracted from self-rated conservatism, plus a constant if Republican, minus a constant if Democrat) and "importance of religion" all predicted scores on NWOM factor 1 (Unilateral Nuclear Weapons Reductions vs. Maintaining/Building up Nuclear Weapons) about equally well, exhibiting a multiple correlation with NWOM factor 1 of .31, thus predicting 10% of the variance on this criterion. For males, only self-rated political liberalism entered into the regression equation for NWOM factor 1, predicting 5% of its variance. In Table 7, "importance of religion" had, for females, been marginally significant, but had not met the criteria for being reported (see page 78 above). The extraction of the variance due to composite conservatism seems to have increased its correlation with

NWOM factor 1 slightly (from a partial correlation of .11 with NWOM factor 1 after the variance from the Bradburn Negative Affect Scale was extracted, to a partial correlation of .17 after the variance from composite conservatism was extracted), which led to its inclusion in the regression equation.

The linear combination, for females, of Age and Turning Against Others, exhibited a multiple correlation of .23 with NWOM factor 2 (Perceived Soviet Machiavellianism), thus predicting 5% of the variance of this NWOM factor. The linear combination, for males, of composite conservatism, Principalization (DMI), and Parent Occupational Status exhibited a multiple correlation with NWOM factor 2 of .54, thus predicting 30% of the variance on this NWOM factor. For females, both age and Turning Against Others were about equal in their ability to predict variance on NWOM factor 2; for the male subjects, composite conservatism was the best predictor of NWOM factor 2 - the other two predictors, not as effective as composite conservatism, were about equal in their ability to predict scores on this criterion. For both sexes, defense mechanisms relating to the expression/control of aggressive impulses were included in the regression equation for predicting NWOM factor 2, but for males, this was Principalization, for females, Turning Against Others. The Bradburn Positive Affect Scale had exhibited, for males, a simple correlation in Table 7 of  $-.27$  with NWOM factor 2; its loss of variance seems to have been due to the inclusion in the regression equation of both composite conservatism and Principalization, after

which it exhibited a partial correlation with NWOM factor 2 of .09. The interpretation of this finding is unclear.

For both males and females, Femininity (PAQ) and composite conservatism were the only predictors to enter into the regression equation for NWOM factor 3 (Pro/Anti Bilateral Nuclear Weapons Reductions), with a multiple correlation for males of .43 (thus predicting 19% of the variance on NWOM factor 3) and with a multiple correlation of .30 for females (predicting 9% of the variance on this NWOM factor). For males, Femininity seems to have been a somewhat better predictor of NWOM factor 3 than was composite conservatism, but for females, these two predictors were roughly equal in their effectiveness.

For males, the variables included in the regression equation for NWOM factor 4 (Likelihood of Nuclear War) - the Bradburn Positive Affect Scale, Locus of Control-Chance and Parent Occupational Status - exhibited a multiple correlation with NWOM factor 4 of .49, thus predicting 24% of its variance; for females, the variables included in the regression equation for NWOM factor 4 (Satisfaction with Health, and Locus of Control-Internal) exhibited a multiple correlation with NWOM factor 4 of .25, thus predicting 6% of this criterion's variance. For males, the Bradburn Positive Affect Scale and Locus of Control-Chance seem to have been more effective at predicting NWOM factor 4 than was Parent Occupational Status; for females, satisfaction with health seems to have been a somewhat better predictor of NWOM factor 4 than was Locus of Control-Internal. In

Table 7, the simple correlation for females between Locus of Control-Chance and NWOM factor 4 was .12, and between Locus of Control-Internal and NWOM factor 4 was -.12; the extraction of the variance from satisfaction with health in the regression equation for NWOM factor 4 for females resulted in a slightly higher partial correlation for Locus of Control-Internal than for Locus of Control-Chance (of -.16 for LOC-Internal, of .15 for Locus of Control-Chance), which led to the former variable's inclusion in the regression equation. For females, extraction of the variance due to satisfaction with health seems to have had the effect of partialling out the variance in the relationship between satisfaction with non-working activities and NWOM factor 4 (the simple correlation in Table 7 between NWOM factor 4 and satisfaction with non-working activities had been .17; after the variance from satisfaction with health was extracted, it was .08). For males, Parent Occupational Status provided a unique and significant source of variance towards the prediction of NWOM factor 4 (the higher the Parent Occupational Status, the less likely nuclear war was perceived as being), although its marginally significant correlation with NWOM factor 4 in Table 7 had not originally met the criterion for being reported.

For males only, a single variable, self-rated political liberalism, was included in the regression equation for NWOM factor 5 (Pro/Anti Preparations aimed at Surviving Nuclear War), which predicted 7% of the variance of this NWOM factor. For females, both age and Turning Against Self were included in the regression equation

for NWOM factor 5, exhibiting a multiple correlation of .31 (thus predicting 10% of the variance of that NWOM factor). Age was a better predictor of NWOM factor 5 than was Turning Against Self. The paradoxical effect between the sexes for Parent Occupational Status and NWOM factor 5, mentioned above in the reporting of the results from Table 7 (for females, these two variables were directly related, for males, inversely related) seems to have been partialled out: for males, by self-rated liberalism (from a simple correlation of  $-.22$  to a partial correlation of  $-.14$ ); for females, by age (from a simple correlation of  $.18$  to a partial correlation of  $.10$ ).

For males, no variables were entered into or removed from the regression equation for NWOM factor 6 (Likelihood of the Proliferative Use of Nuclear Weapons). For females, the variables age, satisfaction with life as a whole, and last grade completed made roughly equal contributions to the prediction of the variance in NWOM factor 6, with a multiple correlation of  $.28$ , thus predicting 8% of the variance in this NWOM factor. The inclusion of satisfaction with life-as-a-whole in this regression equation was somewhat surprising; although it was marginally significant in Table 7, it had not met the criteria for the reporting of findings from that table.

For males, no variables were entered into or removed from the regression equation for NWOM factor 7 (Perceived Manageability of the Consequences of Nuclear War). For females, the only variable to enter the regression equation was "belief in an afterlife," which predicted 4% of the variance of scores in NWOM factor 7.

For females, no variables were entered into or removed from the regression equation for NWOM factor 8 (Worry about Nuclear War). For males, both "importance of religion" and "last grade completed" were included in the regression equation, with a multiple correlation of .47, thus predicting 22% of the variance in scores on NWOM factor 8 (with "importance of religion" making a more substantial contribution in predicting NWOM factor 8 than did last grade completed). The inclusion of importance of religion in this regression equation appears to have resulted in a partialling out of the variance that had been exhibited by M-F (PAQ) with NWOM factor 8, from a simple correlation in Table 7 of  $-.26$ , to a partial correlation after the extraction of the variance due to importance of religion, of  $-.17$  (this dropped to  $-.11$  after the variance from last grade completed was extracted). It appears that the M-F scale (which measures a kind of self-orientation, involving self-characterizations as unemotional, having low approval need, dominant and aggressive) is related to beliefs about the importance of religion.

For males, six variables (economic level, satisfaction with family life, liberalism, satisfaction with health, satisfaction with non-working activities, and Locus of Control-Powerful Others) were included in the regression equation for NWOM factor 9 (Perceived Safety of Sparsely Populated Areas during Nuclear War), exhibiting a multiple correlation of .64 with NWOM factor 9, thus predicting 41% of its variance. For females, four variables (Masculinity, Reversal, liberalism, and Locus of Control-Powerful Others) were included in the regression equation for NWOM factor 9, with a multiple cor-



relation of .32, thus predicting 10% of the variance in this NWOM factor. For males, the best predictor of NWOM factor 9 was satisfaction with family life, and the least effective predictor was Locus of Control-Powerful Others. For females, all predictors were about equal in their effectiveness in predicting scores on this NWOM factor. For males, the extraction of the variance due to satisfaction with family life, political liberalism and to satisfaction with health improved markedly the ability of satisfaction with non-working activities to predict scores on NWOM factor 9, from a simple correlation in Table 7 with NWOM factor 9 of .00, to a partial correlation with NWOM factor 9 after the variance from these three variables was extracted, of .29. Satisfaction with health, for males, for which the simple correlation in Table 7 was marginally significant, and which had not met the criteria for the reporting of findings in that table, contributed a unique and significant source of variance in the prediction of NWOM factor 9. Also, as had been the case in Table 7, political liberalism was related to NWOM factor 9 for the sexes in opposite directions.

For males, the only variable to be included in the regression equation for NWOM factor 10 (Potency/Powerlessness to Prevent Nuclear War) was Principalization (DMI), which predicted 7% of the variance of scores on this NWOM factor. For females, both Locus of Control-Internal and belief in afterlife were included in the regression equation (with Locus of Control-Internal a somewhat better predictor than was belief in an afterlife), together exhibiting a mul-

multiple correlation of .28 with NWOM factor 10, thus predicting 7% of the variance in scores on this factor.

For males, the variables "self-rated political conservatism" and age were included in the regression equation for NWOM factor 13 (American Ignorance of the Destructive Potential of Nuclear Weapons), with a multiple correlation of .37, thus predicting 13% of the variance on this NWOM factor. For females, Locus of Control-Powerful Others, Masculinity (PAQ), and satisfaction with life-as-a-whole were included in the regression equation with NWOM factor 13, exhibiting a multiple correlation of .30, thus predicting 9% of the variance of scores on this NWOM factor. For females, the extraction of the variance due to the inclusion of Locus of Control-Powerful Others in the regression equation seems to have facilitated the emergence of Masculinity as a predictor - its simple correlation with NWOM factor 13 in Table 7 was .04; its partial correlation with NWOM factor 13 after Locus of control-Powerful Others was extracted was .14. The interpretation of this is unclear. Satisfaction with life-as-a-whole was marginally significant in Table 7, but had not met the criteria for being reported among the findings in that table.

Multivariate Analysis of Variance: Sex, Sex-Role, and Nuclear War/  
Weapons Attitudes

Table 9 shows a 2(sex) by 2(sex-role, based on PAQ scores) multivariate analysis of variance on NWOM factor scores. As can be seen; main effects for sex were significant for NWOM factors 1, 4, and 7 (unilateral reductions in nuclear weapons versus building/maintaining nuclear weapons, likelihood of nuclear war, and perceived manageability of the consequences of nuclear war, respectively), corresponding to the results in the "Gender" row of Table 7. NWOM factor 6 (likelihood of proliferative use of nuclear weapons), which had shown up as minimally significant in the "Gender" row of Table 7, did not emerge as significant in this table. Main effects for sex-role were significant for NWOM factors 3, 9, and 10 (pro/anti bilateral nuclear weapons reductions, perceived safety of sparsely populated areas, and potency/powerlessness to prevent nuclear war, respectively). A sex by sex-role interaction was found for NWOM factor 4 (likelihood of nuclear war).

Table 10 shows factor scale means for the significant effects of Table 9, as well as Tukey post-hoc comparisons of sex-role means where sex-role effects were significant. The means for the sex effects echo the results from Table 7 for "Gender" already mentioned indicating, again, greater advocacy of unilateral reductions, greater perceptions of the likelihood of nuclear war, and lower perceived manageability of consequences of nuclear war by females. In looking at the comparisons of sex-role differences for NWOM factor

TABLE 9  
 Multivariate Analysis of Variance:  
 Sex by Sex-Role (PAQ) on NWOM Factor Scores\*

Factor #	Factor Name	Source of Variation	SS	df	F	p
1	Unilateral Nuclear Weapons Reductions vs. Maintaining/Building up Nuclear Weapons	Sex	7.25	1	7.54	.006
		Sex-Role	.99	3	.34	ns
		Sex X Sex-Role	4.24	3	1.47	ns
		Error	254.62	265		
2	Perceived Soviet Machiavellianism	Sex	.32	1	.32	ns
		Sex-Role	1.56	3	.52	ns
		Sex X Sex-Role	.75	3	.25	ns
		Error	266.99	265		
3	Pro/Anti Bilateral Nuclear Weapons Reductions	Sex	.69	1	.73	ns
		Sex-Role	15.88	3	5.60	.001
		Sex X Sex-Role	2.97	3	1.01	ns
		Error	250.52	265		
4	Likelihood of Nuclear War	Sex	18.86	1	20.53	.00001
		Sex-Role	5.03	3	1.83	ns
		Sex X Sex-Role	7.19	3	2.61	.05
		Error	253.51	265		
5	Pro/Anti Preparations aimed at Surviving Nuclear War	Sex	1.93	1	1.93	ns
		Sex-Role	2.63	3	.88	ns
		Sex X Sex-Role	2.79	3	.93	ns
		Error	265.56	265		
6	Likelihood of Proliferative Use of Nuclear Weapons	Sex	3.66	1	3.71	ns
		Sex-Role	1.83	3	.62	ns
		Sex X Sex-Role	.87	3	.29	ns
		Error	269.99	265		
7	Perceived Manageability of the Consequences of Nuclear War	Sex	5.46	1	5.77	.02
		Sex-Role	4.41	3	1.55	ns
		Sex X Sex-Role	4.21	3	1.48	ns
		Error	250.89	265		
8	Worry About Nuclear War	Sex	.60	1	.60	ns
		Sex-Role	1.15	3	.38	ns
		Sex X Sex-Role	.41	3	.14	ns
		Error	264.17	265		
9	Perceived Safety of Sparsely populated Areas during Nuclear War	Sex	.26	1	.27	ns
		Sex-Role	7.70	3	2.69	.05
		Sex X Sex-Role	3.56	3	1.24	ns
		Error	253.05	265		
10	Potency/Powerlessness to prevent Nuclear War	Sex	.59	1	.62	ns
		Sex-Role	7.79	3	2.72	.05
		Sex X Sex-Role	3.67	3	1.28	ns
		Error	252.75	265		
13	American Ignorance of the Destructive Potential of Nuclear Weapons	Sex	.45	1	.45	ns
		Sex-Role	1.90	3	.63	ns
		Sex X Sex-Role	.66	3	.22	ns
		Error	265.99	265		

\*Multivariate significances using Wilk's criterion were as follows:

Sex:  $F(11,255)=4.25$  ( $p=.0001$ )

Sex-Role:  $F(33,752)=1.64$  ( $p=.01$ )

Sex X Sex-Role:  $F(33,752)=1.00$  ( $p=.47$ )

TABLE 10  
 NWOM Factor Score Means of  
 Significant MANOVA Effects (from Table 9)\*

Factor#	Factor Name	Effect	n	M	SD
1	Unilateral Nuclear Weapons Reductions vs. Maintaining/ Building up Nuclear Weapons	<u>Sex</u>			
		Males	76	-.274	1.04
		Females	197	.106	.96
3	Pro/Anti Bilateral Nuclear Weapons Reductions	<u>Sex-Role</u>			
		Masculine	64	-.174(a,d)	1.01
		Feminine	57	.377(b,c)	.80
		Androgenous	75	.139(c,d)	.91
		Undifferentiated	77	-.270(a)	1.11
4	Likelihood of Nuclear War	<u>Sex</u>			
		Males	76	-.396	.91
		Females	197	.153	.99
		<u>Sex X Sex-Role</u>			
		<u>Males</u>			
		Masculine	27	-.486(a,c)	.94
		Feminine	6	-1.220(a)	.53
		Androgenous	19	-.059(a,b,c,d)	.96
		Undifferentiated	24	-.355(a,b,c,d)	.81
		<u>Females</u>			
		Masculine	37	-.037(a,e)	.90
		Feminine	51	.280(b,e)	.94
		Androgenous	56	.095(c,e)	1.04
		Undifferentiated	53	.224(d,e)	1.02
		7	Perceived Manageability of the Consequences of Nuclear War	<u>Sex</u>	
Males	76			.277	1.09
Females	197			-.107	.94
9	Perceived Safety of Sparsely Populated Areas During Nuclear War	<u>Sex-Role</u>			
		Masculine	64	.157(a,b)	.94
		Feminine	57	-.070(a,b,c)	1.06
		Androgenous	75	-.308(c)	.93
		Undifferentiated	77	.221(b)	.99
10	Potency/Powerlessness to Prevent Nuclear War	<u>Sex-Role</u>			
		Masculine	64	.107(a,b)	.95
		Feminine	57	.206(a)	1.01
		Androgenous	75	.082(a,b)	1.03
		Undifferentiated	77	-.320(b)	.93

\*The Tukey HSD Test was used to make A Posteriori comparisons on means. Differences between means with the same subscripts are not significant at  $p \leq .05$ .

scales, the reader should keep in mind that Masculine indicates an above-median score on Masculinity and a below-median score on Femininity, Feminine indicates the reverse pattern on these PAQ scales, and that Androgenous and Undifferentiated indicate, respectively, above median and below median scores on both Masculinity and Femininity. For NWOM factor 3, both "Masculine" and "Undifferentiated" subjects of both sexes were less favorable to bilateral nuclear weapons reductions than were "Feminine" subjects of both sexes. Androgenous and undifferentiated subjects of both sexes differed significantly from each other. For NWOM factor 9, Androgenous subjects of both sexes viewed sparsely populated areas as less safe in the event of nuclear war than did masculine and undifferentiated individuals of both sexes. For NWOM factor 10, feminine individuals of both sexes perceived themselves, to a greater extent than did undifferentiated individuals, as able to take action which could make the prospect of nuclear war less likely.

For NWOM factor 4, for which the sex by sex-role interaction was significant, males exhibiting different sex-role styles did not differ from each other, and females with varying sex-role styles did not differ among themselves either. However, "masculine" males differed from both "feminine" and "undifferentiated" females, and "feminine" males differed from feminine, androgenous and undifferentiated females in that these males perceived nuclear war as less likely.

### Other Results

Subjects had responded to a question asking them to list what they considered to be the three most important problems in the world today. Responses to this were coded "1" if the subjects included among these problems issues relating to nuclear war and nuclear weapons, and were coded "2" if nuclear war/weapons issues were not among their responses. A 2(sex) by 2(most important problem) multivariate analysis of variance was performed with the 11 NWOM factor scales as the dependent variables. The significant sex results were as have already been described directly above, and no interactions were significant (sex had been included as a factor in order to test for interactions). Only one significant effect, for "most important problem" was found, for NWOM factor 3 (pro/anti bilateral reductions in nuclear weapons), with the F statistic being  $F(1,233) = 7.78$ ,  $p < .01$ , and the factor scale means for those listing and not listing nuclear war/weapons problems among the world's most important were, respectively, .135 and -.253. In other words, those who listed nuclear war-/weapons-related issues among the world's most important favored bilateral reductions in nuclear weapons more strongly than those who had not included nuclear war/weapons issues among the most important.

## CHAPTER IV

### DISCUSSION<sup>1,2</sup>

#### Correlates of Nuclear War/Weapons Attitudes

##### Defense Mechanisms and Nuclear War/Weapons Attitudes

For both sexes, defensive styles that deny aggressive impulses were associated with minimal anti-Soviet perceptions, whereas the Turning-Against-Others defensive style (which may be thought of as measuring inclination to the ready expression of aggressive thoughts and feelings) was associated with greater anti-Soviet perceptions. This finding is certainly suggestive of the possibility that styles of handling aggressive impulses become transferred to one's perceptions of international relations, and particularly, to construals of a nation with which the United States has a currently adversarial relationship. It is almost as though, given that anti-Soviet sentiment is the accepted and prevalent public view (see literature review above for evidence for this), those who habitually express their aggressiveness transfer it to this publicly acceptable object of hate; whereas those who are capable of inhibiting their aggressive impulses are also capable of questioning prevailing anti-

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<sup>1</sup>Discussion of the findings as they relate to hypotheses begins below on page 135.

<sup>2</sup>Throughout this discussion, where it appears useful, the number of the NWOM factor being discussed will be stated in brackets at the end of the paragraph, unless the NWOM factor number is given in the text.



Soviet perceptions. [NWOM factor 2]

For males only, "projection" (expression of aggression, after imputing aggressive motives to the object of aggression) was found to be directly related to anti-Soviet perceptions. This would suggest that part of the reason for anti-Soviet sentiment among males involves the projection of hostility upon the Soviets, quite apart from any genuine historical reasons for hostility that may exist.

[NWOM factor 2]

Also for males, the denial-of-aggression style was associated with viewing sparsely populated areas as not safer during nuclear war, and with believing that one can have an impact on making nuclear war less likely (the converse of both nuclear war attitudes holding for subjects with an aggression-expressing style). Paradoxically, the denial-of-aggression style in females was associated with viewing sparsely populated areas as safer in the event of nuclear war. The reasons for the relationship between these defenses and these nuclear war/weapons attitudes, as well as the reason for the differential effects between the sexes in these findings, is not clear. [NWOM factors 9 and 10]

For females, the orientation to express aggression (in the form of high scores on Turning Against Others) was associated with the position that the U.S. should build up nuclear weapons, or should maintain them at current levels. This would certainly be consistent with the hypothesis that, for females, aggressiveness styles become

projected onto nuclear weapons policy (although specific differential hypotheses for the sexes were not made in this area, and why this should hold for females, and not for males, is also not apparent).

[NWOM factor 1]

Also for females, the defensive style of Turning Against Self (involving feelings of self-blame, self-doubt and of inadequacy) was associated with the position that the U.S. should not invest in measures aimed at enhancing the survivability of its population in the event of nuclear war. A possible explanation for this would be that the "don't prepare" position is consonant with one that invites the greatest amount of punishment (to society, as well as to self). Obviously, this represents a kind of psychodynamic hypothesis. A rather different hypothesis, also quite tentative, would be that a particular kind of family environment may be responsible both for the turning-against-self orientation, and for the "don't prepare for nuclear war" position (either because it may tend to be more liberal in general, or because it may spur an ideological rebellion that results in more liberal attitudes). [NWOM factor 5]

In summary, defensive styles relating to the handling of aggressive impulses seem to influence nuclear war attitudes in ways that are consonant, to a considerable extent, with the particular defense mechanisms involved. However, why they influence the sexes somewhat differently, and the reasons behind their relationships with certain nuclear war attitudes (particularly, NWOM factors 9 and 10), are unclear.

Liberalism/Conservatism and Nuclear War/Weapons Attitudes

For all subjects, self-rated liberalism was associated with a position advocating unilateral reductions in nuclear weapons, and conservatism (as measured by composite conservatism scores, from which liberalism was subtracted and which took account of political party) was associated with the position of maintaining at current levels/building up nuclear weapons, and with opposing bilateral nuclear weapons reductions. These associations provide evidence for the validity of the NWOM, as we see groups whose traits are known responding in a predictable and consistent manner on this instrument. [NWOM factors 1 and 3]

Looking at males separately, patterns of response regarding Liberalism/Conservatism and nuclear war/weapons attitudes are found that differ from those of the sample as a whole, and from those of females separately. For males, liberalism was associated with minimal anti-Soviet perceptions, with opposition to preparations aimed at enhancing population survivability in the event of nuclear war, and with the belief that sparsely populated areas are not safer if nuclear war occurs. Self-rated conservatism (and for attitudes towards the Soviets, composite conservatism scores as well) was associated with marked anti-Soviet perceptions and with favoring measures aimed at enhancing population survival if nuclear war occurs. These contrasts of opinion can easily be seen as representing opposing liberal and conservative camps. But some of the results for males on liberalism/conservatism don't accord as easily with

these almost stereotypical partisan positions. Male self-rated conservatism was associated with viewing the American people as ignorant of the destructive potential of nuclear weapons (and conversely, those males who rated themselves as less conservative, although not necessarily more liberal, perceived the American public as aware of their destructive potential). Perhaps this relates (and this suggestion is made very tentatively) to somewhat hostile perceptions of the mass public by people who rate themselves as highly conservative (this assumes that those who are markedly conservative may feel alienated from the general public, and may exaggerate the differences that exist). [NWOM factors 2, 5, 9 and 13]

For females alone, the only political-attitudes-related finding to occur was that self-rated liberalism was directly related to perceptions that sparsely populated areas would be safer in the event of nuclear war (in contrast to male liberals, who believed that they would not be safer). This parallels, but does not illuminate, the very analogous finding concerning defense mechanisms, for which the "aggression denying" defenses were associated with the male perception that sparsely populated areas are not safer in the event of nuclear war, but for females were associated with the perception that they would be safer under those circumstances. [NWOM factor 9]

Overall, it appears that the liberalism/conservatism dimension relates to a wider variety of nuclear war/weapons attitudes for males than it does for females, and one can speculate that it has a more profound effect on nuclear war attitudes for males. In summary,

many of the findings obtained were in line with the political beliefs commonly thought to be held by "liberals" and by "conservatives." However, some findings were not interpretable by recourse to this explanation, and the reasons behind them are unclear.

#### Demographic Variables and Nuclear War/Weapons Attitudes

For both sexes, age was directly related to perceptions of Soviet Machiavellianism, and was also directly related to perceptions of American ignorance of the potential for destruction by nuclear weapons. This may reflect an increasing conservatism with age (perceptions of American ignorance of nuclear weapons' destructive capacity was associated with a conservative point of view in this study). No significant relationships between age and nuclear war/ weapons attitudes applying only to males were found, but for females, age was found to be directly related to perceptions of the likelihood of the use of nuclear weapons by terrorists and/or small countries, and increasing age was associated with decreasing support of preparations aimed at increasing the survival of the population if nuclear war occurs. [NWOM factors 2, 5, 6 and 13]

For both sexes, the more college education completed, the lower was the degree of worry about nuclear war - it may be that, with increasing education, people become highly exposed to and ultimately persuaded by arguments that adequate deterrence will prevent nuclear war. For males, no relationship was found between education and

nuclear war attitudes that did not also occur for females. But for females, the higher the last grade completed, the lower the belief that terrorists and small countries would in the future procure and employ nuclear weapons. This finding is similar to the finding for both males and females reported above - a decrease in the concern about the possible use of nuclear weapons as education increases. Perhaps more highly educated people are also more likely to believe that others, too, are rational (and that they will therefore act rationally vis a vis nuclear weapons). [NWOM factors 6 and 8]

Parent occupational status and self-rated economic level were not related to nuclear war/weapons attitudes in uniform ways for males and females. For males, higher parental occupation (on a continuum of highly skilled and educated white collar versus unskilled blue collar) and higher economic level were both related to decreased anti-Soviet perceptions, higher parental occupation was related to lower expectations of nuclear war, and higher economic level was related to a decrease in the perception of the safety of sparsely populated areas during nuclear war. These findings, including the decreased expectations for nuclear war, are consistent with the idea that higher parental occupational status and economic level are, for males, related to more liberal attitudes about nuclear war and nuclear weapons (Tyler and McGraw, 1983, found that anti-war activists had lower expectations of nuclear war than did the general public). For females, higher

economic levels were associated with favoring preparations for surviving nuclear war, and higher parental occupation was associated with perceptions that Americans were not ignorant of the destructive potential of nuclear weapons. [NWOM factors 2, 4, 5, 9, and 13]

In summary, it appears that distrust of the Soviets increases with age. It also appears that among females, there is increasing cynicism about the likelihood of the proliferative use of nuclear weapons, and the worthwhileness of preparing for nuclear war, with increasing age. Among males, higher parental occupational status was associated with certain more "liberal" nuclear war/weapons attitudes.

#### Religious Orientation and Nuclear War/Weapons Attitudes

For both sexes, belief in an afterlife was associated with opposing preparations aimed at enhancing population survivability in the event of nuclear war, and religious orientation in general (involving both afterlife belief and importance of religion) was associated with worry about the possibility of nuclear war. One can speculate that somehow, for subjects believing in an afterlife, nuclear war itself may have been equated with the apocalypse described in the bible - therefore, there would be no reason to prepare for surviving nuclear war, because if it were to occur, it would be part of God's plan for the end of the world and the Second Coming of Christ (it should be added that 92% of this sample were Christians, with 66% Roman Catholic and 26% Protestant). Alternately, it could be that a religious orientation in general engenders attitudes that are both pro-peace and concerned with humanity as a whole. This hy-

pothesis would explain both the opposition to preparations for surviving nuclear war (since preparing for nuclear war may be construed as inconsistent with peace), and the heightened anxiety about the prospect of nuclear war (focusing on its potential destructiveness to humanity). The association of "Presence of Religious Orientation" and "Denial of Aggression" through their comprising the positive pole of the same second-order factor in Table 6 above supports this hypothesis. Still another possibility is that people with a religious orientation fear some kind of accountability to God in the event of nuclear war, and that this is why they are more worried about nuclear war than are people without a religious orientation. [NWOM factors 5 and 8].

For males only, an overall religious orientation was associated with the perception that Americans are unaware of the destructive potential of nuclear weapons. Tentatively, it seems possible that anxiety about the prospect of nuclear war (which occurred for both males and females with a religious orientation), coupled with a perception of American society as secular (if not, to a religious person, paganistic) may have something to do with this perception (although this doesn't explain why this relationship occurred for males specifically). [NWOM factor 13]

For females, but not for males, belief in an afterlife was associated with the perception that the consequences of nuclear war would be unmanageable (e.g., that a very large percentage of humanity would die, that there'd be no recovery) and with the perception that



actions can be taken that could make nuclear war less likely. This finding, too, fits in, both with the "apocalypse hypothesis" above (nuclear war would be unmanageable because it would literally be the apocalypse) and with the idea that man will be held accountable by God if nuclear war occurs (hence the position that one can contribute to the prevention of nuclear war - one could only be held accountable if one had free will to act). Alternately, it may be that perceptions that one can take action which will make nuclear war less likely\*may reflect a general pro-peace attitude on the part of people who consider themselves religious. [NWOM factors 7 and 10]

In summary, a religious orientation was found to be associated with worry about nuclear war. Afterlife belief, specifically, was associated with somewhat more "liberal" views on nuclear war and nuclear weapons: for both sexes, with opposition to preparations aimed at surviving nuclear war; and for females, with viewing the consequences of nuclear war as unmanageable, and with viewing oneself as capable of influencing the likelihood of nuclear war.

#### Locus of Control and Nuclear War/Weapons Attitudes

For both sexes, Locus of Control-Chance was related to perceptions of the likelihood of nuclear war. Thus, those who believed that chance plays a significant role in the major events of their lives also perceived a high likelihood of nuclear war (conversely, those who did not ascribe an important role to chance perceived nuclear war as having a low likelihood). It would seem that, for those

who do not believe that important events happen by chance, other causes of nuclear war (such as a nation deliberately and rationally beginning one) appear unlikely; whereas for those with a "chance" orientation, it must appear that chance events, over and above any rational or deliberate decision, could result in a nuclear war. Moreover, NWOM factor 4 (likelihood of nuclear war) contains items reflecting the idea that nuclear war could be caused by unforeseen and uncontrollable events, which is very similar to the dimension which differentiates high and low scorers on "chance".

Also for both sexes, Locus of Control-Powerful Others was directly related to perceptions that sparsely populated areas would be safer in the event of nuclear war. Perhaps these subjects believe that people in authority will see to it that such places will receive aid in the event of nuclear war which would enable their inhabitants to survive. [NWOM factor 9]

For males only, Locus of Control-Chance was directly (but weakly) related to worry about nuclear war - i.e., the greater the "chance" orientation, the greater the worry. For females, but not for males, Locus of Control-Chance was directly related to perceptions of sparsely populated areas as safer, and was negatively related to perceptions that one's actions could make a difference in affecting the likelihood of nuclear war. Perhaps, the greater the belief that major events in one's life occur as a result of chance, the greater the belief as well that one may be able to escape harm by happening to be in a relatively unpopulated area at

the time a nuclear war begins, or by being able to get to one after it starts. Similarly, the greater the attribution of major and important life events to chance, the less the perception that one's actions can affect the likelihood of nuclear war. In other words, females scoring high on "chance" seem to be exhibiting a kind of resignedness about the prospect of nuclear war, but some hope about their own survival. Conversely, for women scoring high on Locus of Control-Internal, the perception is that one can take action that may make nuclear war less likely. These two positions (internal control, and belief in the preventability of nuclear war through one's own actions) are obviously consonant, and their relationship has been observed elsewhere (Tyler and McGraw, 1983). [NWOM factors 8, 9 and 10]

Another finding relevant to women only was that scoring high on Locus of Control-Powerful Others was associated with a position of opposition to bilateral reductions in nuclear weapons. Perhaps the "powerful others" orientation intensifies both the perceived threat from the Soviet Union, and the importance of the force that has the purpose of countering that threat (i.e., U.S. nuclear deterrence), both of which are in the hands of "powerful others." [NWOM factor 3]

An additional finding, for females only, was that External Locus of Control (i.e., both "chance" and "powerful others") was related to perceptions that Americans are ignorant of the unique destructive potential of nuclear weapons. It would seem a logical

connection that those who are attuned to perceiving the occurrence of significant personal events as being beyond their control and/or due to powerful others should be hypersensitive to ignorance on the part of Americans about nuclear weapons (who might be viewed as ultimately controlling such weapons). [NWOM factor 13]

In summary, the relationship between locus of control and nuclear war/weapons attitudes reflects the unique aspects of particular control orientations, but as with many of the previous findings, the specific relationships obtained differed from those expected (i.e., in the hypotheses), and for males and females. Overall, locus of control seemed to play a more important role in influencing nuclear war/weapons attitudes for females.

#### Life Satisfaction and Nuclear War/Weapons Attitudes

For all subjects, scores on the Bradburn Positive Affect Scale (1969) were directly related to perceptions of ability to contribute to preventing nuclear war. It seems plausible that the dimension of these two measures responsible for this relationship might be one of an underlying "optimism." [NWOM factor 10]

For males only, scores on the Bradburn Positive Affect Scale were negatively related to perceptions of the Soviets as machiavelian, and were directly related to perceived likelihood of nuclear war. The former finding suggests, again, the possibility that a general optimism may influence nuclear war-/weapons-related attitudes, in this case, perceptions of the Soviets. However, the

latter finding (that positive affect was related to increased perceptions of the likelihood of nuclear war) does not support this interpretation. Perhaps the explanation for this relationship may lie in an adaptation of the "psychic numbing" concept (Lifton, 1982). It seems plausible that the greater the feelings of well-being (as measured by the Bradburn Positive Affect Scale), the less would be the need for "psychic numbing," referring, in this context, to denial of the prospect of nuclear war.

[NWOM factors 2 and 4]

For females only, high scores on the Bradburn Negative Affect Scale (1969) were associated with advocating unilateral reductions in nuclear weapons. A tentative explanation might be that this is the result of a family background that generated both chronic negative affect, and an ideological rebellion which engendered this nuclear weapons position. Or, also quite tentatively, there may be some relationship between feeling socially isolated (some negative affect scale items inquire about such feelings) and holding somewhat socially deviant opinions - along this line of reasoning, less contact with peers might decrease ideological conformity. [NWOM factor 1]

For females only, satisfaction with life in general was related to the perception that Americans are not ignorant of the destructive potential of nuclear weapons - this would seem to reflect the influence of "optimism" on nuclear war/weapons attitudes. For males, satisfaction with friendships and satisfaction in general were associated with perceptions that it is possible to take actions which could make nuclear war less likely. For females, satisfaction with family life was related to the same perceptions, i.e., that one could act to reduce the risk of nuclear war.

Thus, it would seem that for both sexes, a kind of positive involvement with others was related to the perception that one's actions can contribute to making nuclear war less likely. [NWOM factors 10 and 13]

For females only, satisfaction with health was associated with perceiving nuclear war as likely, and satisfaction with life in general was associated with perceptions that the proliferative use of nuclear weapons was likely. For males, satisfaction with health and satisfaction with family life were both associated with the perception that sparsely populated areas would not be safer in the event of nuclear war. These findings suggest the variant of the psychic numbing hypothesis that was put forth above - people who feel psychologically stronger may be better able to admit/confront the prospect of nuclear war (i.e., less psychic numbing) than people who are dissatisfied (who may feel psychologically weaker), who might engage in more repression of such thoughts in order to minimize their already considerable discomfort. [NWOM factors 4, 6 and 9]

Overall, life satisfaction seemed to exhibit a few different, general types of relationships with nuclear war/weapons attitudes: a relationship that reflected optimism regarding both life and nuclear weapons; a relationship suggesting that more satisfied subjects are able to tolerate more anxiety in thinking about nuclear war; and a relationship suggesting that positive involvement with others (for males, friends, for females, family) was associated with perceptions that one could contribute to making nuclear war less likely.

Sex, Sex-Role, and Nuclear War/Weapons Attitudes

For both males and females, high (PAQ) M-F scale scores (high scores indicating self-perceptions as unemotional, low approval seeking, dominant and aggressive) were associated with being opposed to bilateral nuclear weapons reductions, whereas high Femininity (PAQ) scores were associated with advocating bilateral reductions in nuclear weapons. Perhaps for high M-F scorers, the style of being aggressive and dominant influences positions about nuclear weapons - perhaps in that area too, they advocate a position of dominance for an object of identification (i.e., the U.S.). Perhaps, then, for those scoring high on Femininity, the inclination to give to and nurture others may be expressed in the favorability to bilateral reductions, which is a position which may be viewed as most protective to all parties (i.e., to the U.S. and the Soviet Union). [NWOM factor 3]

For males only, high scores on M-F (PAQ) and on Masculinity (PAQ) were both associated with a low degree of worry about nuclear war - perhaps for high M-F scorers, their unemotionalness is incompatible with worry about nuclear war, while for high Masculinity scorers, the style of self-confidence and tenacity is incompatible with worry over this. [NWOM factor 8]

For females only, low scores on Masculinity (i.e., self-descriptions as easily frustrated and lacking self-confidence) were associated with viewing sparsely populated areas as safer in the event of nuclear war. Perhaps, for these more anxious females,

such a belief helps to allay anxiety about nuclear war. Also, for females only, scores on Femininity were directly related to the position that one could take action that will contribute to making nuclear war less likely (this may be viewed as a position consistent with a nurturing attitude). [NWOM factors 9 and 10]

The main significant differences between males and females on the NWOM were that females favored unilateral reductions more strongly, perceived nuclear war as being more likely, and viewed the consequences of nuclear war as potentially less manageable than did their male counterparts. Perhaps we can legitimately speak of "male" and "female" outlooks on nuclear weapons. The "male" view would be that unilateral reductions are too dangerous to consider, that nuclear war is relatively unlikely, and if it were to occur, it would not mean either the end of the world or the end of civilization. The "female" view would be that the probability of nuclear war is high, that if it occurs, it will mean the end of the world, and that unilateral reductions in nuclear weapons should be considered as a means of avoiding that fate. [NWOM factors 1, 4, and 7]

In general, sex-role orientation was related to nuclear war/weapons attitudes in ways that were consonant with the unique characteristics of the various sex-roles examined. However, these differences in nuclear war/weapons attitudes by sex-role did not parallel or duplicate the differences in nuclear war/weapons attitudes obtained between the sexes.



### The Prediction of Nuclear War/Weapons Attitudes

As had been mentioned in the results section, the greater multiple correlations obtained for males between predictors and NWOM factors may have been due, in part, to the fact that there were considerably fewer males than there were females in the sample. Nevertheless, it appears that the greater magnitude of these multiple correlations for males may have been due as well to the predictors' being related to a greater extent to nuclear war/weapons attitudes for males than they were for females. For males, linear combinations of predictors were able to predict as much as 41% of the variance in scores on a NWOM factor (NWOM factor 9), whereas for females, no linear combination of predictors succeeded in predicting more than 10% of the variance of scores on a NWOM factor.

#### Prediction of Nuclear War/Weapons Attitudes for Males

Linear combinations of predictors were able to predict 15% or more of the variance in: attitudes towards the Soviet Union (NWOM factor 2); attitudes about bilateral nuclear weapons reductions (NWOM factor 3); expectations about the likelihood of nuclear war (NWOM factor 4); worry about nuclear war (NWOM factor 8); and attitudes about the safety of sparsely populated areas in the event of nuclear war (NWOM factor 9). From among these, the strongest predictions were able to be made for attitudes about the perceived safety of sparsely populated areas in the event of nuclear war (NWOM factor 9), accounting for 41% of the variance in this nuclear war/weapons attitude, and for attitudes towards

the Soviet Union (NWOM factor 2), accounting for 30% of the variance on this criterion. Among the predictors accounting for the greatest amounts of variance across these regression equations (relative to all of the other predictors in these regression equations) were composite conservatism, Femininity, importance of religion, and various measures relating to life satisfaction. The predictors that were related to the greatest variety of nuclear war/weapons attitudes were liberalism/conservatism variables (NWOM factors 1, 2, 3, 5, 9, and 13) and demographic variables (NWOM factors 2, 4, 8, 9, and 13).

#### Prediction of Nuclear War/Weapons Attitudes for Females

Linear combinations of predictors were able to predict 8-10% of the variance for attitudes towards unilateral nuclear weapons reductions (NWOM factor 1), attitudes towards bilateral nuclear weapons reductions (NWOM factor 3), attitudes towards preparations aimed at surviving nuclear war (NWOM factor 5), expectations about the possibility that small countries and/or terrorists will procure and use nuclear weapons (NWOM factor 6), perceptions of the safety of sparsely populated areas in the event of nuclear war (NWOM factor 9), and for perceptions of American awareness of the destructive potential of nuclear weapons (NWOM factor 13). Unlike for males, for whom two types of predictors (liberalism/conservatism variables and demographic variables) were related to a much greater number of NWOM factors than were the other predictors, for females, all types of predictors were moderately represented in predicting the various criteria. The predictors of the greatest number of different NWOM factors were life satisfaction variables (NWOM factors 1, 4, 6, and 13) and Locus of Control variables (NWOM factors 4, 9, 10, and 13).

### Current Findings: Their Relationship to Hypotheses

The evidence of this study clearly supports the idea that aspects of personality influence nuclear war attitudes, not just about the probability of nuclear war, but also about how it may be prevented, the utility of preparations for it, the manageability of its potential consequences, beliefs relating to personal survival should it occur, worry about it, attitudes towards the leaders of the Soviet Union, and perceptions of the attitudes of others about nuclear war and nuclear weapons. The suggestion that the ambiguity of information concerning these matters contributes to their influence by personality factors was thus indirectly supported.

#### Sex and Sex-Role Orientation

The relationship between sex-role, gender and nuclear weapons has turned out to be somewhat more complex than originally anticipated. Sex-role, as measured by the Personal Attributes Questionnaire, differentiated subjects primarily on NWOM factors 3, 9 and 10 (advocacy of bilateral nuclear weapons reductions, perceptions of the safety of sparsely populated areas in the event of nuclear war, and perceptions of ability to take action to make nuclear war less likely); but aspects of sex-role different from those measured by the PAQ (and about which one can only speculate at this point in time) seem to differentiate the sexes on NWOM factors 1, 4, and 7 (support of unilateral reductions versus building/maintaining nuclear weapons, likelihood of nuclear war, and perceived manageability of

consequences of nuclear war). Aggression-denying versus aggression-expressing defensive styles seem to have far more to do with attitudes towards the Soviets (NWOM factor 2) than do the styles of "agency" (Masculinity-PAQ) versus "communion" (Femininity-PAQ), and males may project more hostility onto the Soviets (NWOM factor 2) than do females. Masculinity, as measured by the masculinity scale of the PAQ, seems to relate to worry about nuclear war (NWOM factor 8) for males - the higher the masculinity score, the lower the degree of worry (and visa versa).

In summary, although differences in sex-role style seem to influence nuclear war/weapons attitudes to a considerable extent, they exert this influence in ways not originally anticipated, and a number of other influences (not entirely understood) seem to mediate sex differences in this area.

#### Locus of Control

Locus of control turned out to be related to a wide range of nuclear war/weapons attitudes, but its relationship to them took different forms than originally anticipated. Also, the differences between males and females in the relationship of this variable to nuclear war/weapons attitudes were not anticipated.

It had been predicted that locus of control would relate to the belief that one could take action that would contribute to the prevention of nuclear war. This relationship was found to hold in the present research - but only for females (for whom Locus of

Control-Chance was found to be inversely related, and Locus of Control-Internal positively related, to perceptions of the preventability of nuclear war through personal actions). [NWOM factor 10]

The only results to hold for both sexes were that Locus of Control-Chance was directly related to perceptions of the likelihood of nuclear war, and Locus of Control-Powerful others was directly related to the perception that sparsely populated areas would be safer in the event of nuclear war. Expected manageability of the consequences of nuclear war was not found to be related to any form of locus of control (although it had been anticipated that it would), for either sex. For females only, Locus of Control-Chance was found to be related to perceptions of the safety in nuclear war of unpopulated areas. Both this finding, and the finding for all subjects relating a "powerful others" orientation as well to perceptions of the safety of unpopulated areas during nuclear war, contradicted the prediction that "internals" would feel more capable of surviving nuclear war. [NWOM factors 4, 7, and 9]

Thus, it appears that some hypotheses regarding locus of control and nuclear war/weapons attitudes were partially supported, while others (particularly the predicted relationship between "internal" control and perceived survivability of nuclear war) were contradicted.

### Satisfaction with Life

It had originally been predicted that satisfaction with life would be directly related to optimistic positions across the board about nuclear war and nuclear weapons. As with the other correlates, the actual relationships obtained in the findings turned out somewhat differently from what had been originally hypothesized.

For all subjects, the Bradburn Positive Affect Scale (and for males and females separately, different types of satisfaction) was associated with perceiving nuclear war as able to be made less likely through the efforts of oneself or other people. This constituted the only confirmed hypothesis obtained for the life satisfaction variables, and was in keeping with what might be called the optimism-spillover idea (which was the relationship between optimism and nuclear war/weapons attitudes originally predicted, i.e., that a generally optimistic attitude would influence or "spill over" to nuclear war/weapons attitudes). Also in line with this general hypothesis, but not specifically predicted: for males only, positive affect was related to decreased anti-Soviet perceptions; and for females only, satisfaction with life in general was associated with perceptions of Americans as not ignorant of the destructive potential of nuclear weapons. [NWOM factors 2, 10 and 13]

In a number of instances, the relationships that had been obtained didn't fit with this hypothesis - for example, the positive relationship for both sexes between forms of satisfactions (for males, the Bradburn Positive Affect Scale; for females, satisfaction with health) and perceptions concerning the likelihood of nuclear war. In order to explain these relationships, a kind of "psychic numbing" hy-

pothesis was put forth (to borrow a concept from Lifton, 1982), as a post-hoc explanatory principle; the idea being, the greater the satisfaction, the more able the individual was to admit to himself or herself that the possibility of nuclear war really exists. Also, the association for females of the Bradburn Negative Affect Scale with advocacy of unilateral reductions in nuclear weapons did not fit either the "optimism-spillover" or the "psychic numbing" hypotheses, and so a number of alternate explanations were put forth (see the previous section of this chapter). [NWOM Factors 1 and 4]

Thus, the original hypotheses accounted for only a minority of the findings concerning the relationship between life satisfaction nuclear war/weapons attitudes, and other, post-hoc hypotheses were put forth as possible explanations of results.

#### Defense Mechanisms

The hypotheses in this area tended, for the most part, to be too ambitious in the extensiveness of the anticipated connections between defense mechanisms and nuclear war/weapons attitudes, and some of the findings obtained were not predicted. But some central ones were. It had been predicted that defense mechanisms would be found to influence attitudes towards the Soviets, and this was found to be the case (Principialization and Reversal were negatively related, and Turning Against Others was positively related, to perceptions of the Soviets as machiavellian). Some of the effects that were predicted held only for one sex or the other - e.g., Turning Against Others was associated with favoring maintaining/building

up nuclear weapons, but only for females; and Projection was associated with anti-Soviet attitudes, but only for males. Moreover, some relationships obtained between defense mechanisms and nuclear war/weapons attitudes, for one sex or the other, were unanticipated. For males, Reversal and Principalization were positively related, and Turning Against Self and Projection were negatively related, to perceptions that one could take actions that could make nuclear war less likely (perhaps, for males, the intervening factor in this finding was distrust of the Soviets, which from such a point of view, would make working for nuclear reductions undesirable). For females only, high scores on Turning Against Self were associated with the attitude that efforts aimed at enhancing the survivability of the population in the event of nuclear should not be made (although this wasn't specifically predicted, this finding is in line with other predictions that were made regarding defense mechanisms and nuclear war attitudes, particularly in the form of the idea of nuclear war/weapons attitudes as an instrument for self-punishment for high Turning Against Self scorers).

[NWOM factors 1,2,5, and 10]

Thus, along with some unanticipated findings, some confirmation of hypotheses relating defense mechanisms to nuclear weapons attitudes occurred, particularly in the area of attitudes towards the Soviet Union.



Current Findings: Their Relationship  
to Prior Research

The following represents an examination of the present research in light of past findings, both from surveys, and from the limited amount of research of a psychological nature that has been done in this area.

In Gallup polls done between 1981 and 1983, it was found that, so far as the perceived probability of nuclear war within the ten years following the poll was concerned, women viewed it as more likely than did men, the high school educated viewed it as more likely than the college educated, democrats viewed it as more likely than republicans, manual workers viewed it as more likely than professional and business workers, and lower income respondents viewed it as more likely than did higher income respondents. In the current study, females were found to view nuclear war as being more likely than did males, and males whose parents held "white collar" positions (broadly construed) tended to view nuclear war as less likely than did their blue collar male counterparts, but none of the other subgroups that had differed in their perceptions of the likelihood of nuclear war in these Gallup polls did so in the present study (i.e., on NWOM factor 4, "likelihood of nuclear war"). However, variables such as age, education and liberalism/conservatism were found to be related to some of the other scales of the NWOM.

In Gallup polls of May, 1981, January, 1983 and May, 1983; no differences among various subgroups (e.g., race, sex, political affiliation, income level) was found for support for a bilateral freeze on nuclear weapons. In the current study, it was found that conservatism (measured by subtracting self-rated liberalism from self-rated conservatism and adding or subtracting a constant depending on political party) was, for all subjects, related to attitudes about bilateral nuclear weapons reductions (NWOM factor 3), with the more conservative subjects opposing this course of action. Moreover, for all subjects, sex-role orientation was related to this NWOM factor. That any between-group differences (of a correlational nature) were found at all is somewhat surprising, as bilateral reductions are widely thought of as having popular, across-the-board support.

A Des Moines Register poll of May, 1982, found that women indicated, much more strongly than men, that they preferred not to be among the survivors of a nuclear war. Perhaps the finding of the current study that women view the consequences of nuclear war as more devastating and unmanageable than do men underlies their preference of death in those circumstances. [NWOM factor<sup>o</sup> 7]

Tyler and McGraw (1983), using scales measuring nuclear war preventability and survivability (similar in a limited way to NWOM factors 10 and 9, respectively), reported that locus of control (measured by four items) was related to preventability, but not survivability, of nuclear war. In the current study, it was found that Locus of Control-Powerful Others (a control dimension that Tyler

and McGraw didn't employ) was related to survivability (in the perception that sparsely populated areas are safer in the event of nuclear war - NWOM factor 9). It was also found that Locus of Control-Chance was related to survivability and to preventability, and that Locus of Control-Internal was related to preventability as well (in the sense of belief in one's potential impact on decreasing the likelihood of nuclear war - NWOM factor 10), but these relationships held for females only.

Profiles, by Sex, of Attitudes and Correlates  
relating to Nuclear War and Nuclear Weapons

The following tables represent an attempt to extrapolate, on the basis of the data obtained in this study, to the beliefs held by the "typical" male and female, and about which characteristics describe the typical male and female nuclear "hawk" (someone who takes a position that is more conservative on attitudes about nuclear war and nuclear weapons) and the typical male and female "dove" (more liberal in attitudes about nuclear war and nuclear weapons), as well as to which characteristics seem to accompany the "hawk" and "dove" positions, regardless of sex.

Table 11A shows the beliefs and some other characteristics that, according to the data obtained in this investigation, and in very broad terms, most clearly distinguish males from females in nuclear war/weapons attitudes. These differences have been dis-

TABLE 11A

Major Differences between the  
Sexes on Nuclear War/Weapons Attitudes\*

Typical Male	Typical Female
Lower favorability towards unilateral reductions.	Greater favorability towards unilateral reductions.
Lower perceived likelihood of nuclear war.	Greater perceived likelihood of nuclear war.
Consequences of nuclear war viewed as relatively manageable.	Consequences of nuclear war viewed as unmanageable.
Political belief strongly influences nuclear war/ weapons positions.	Relatively little influence of political belief on nuclear war/ weapons position.
Locus of Control Orientation has relatively little influence on nuclear war/ weapons positions.	Locus of Control Orientation has considerable influence on nuclear war/ weapons positions.

\*These extrapolations are, of course, based on the data from the samples employed. Generalizing to other samples must be done with caution.

cussed above in this chapter, and point to the very different general perceptions in these areas that were found for males and females.

Table 11B shows those attitudes characterizing nuclear hawks versus nuclear doves of both sexes (assuming a composite "hawkish" position would be reflected in high scores on NWOM factors 2, 3, 5, 7, and 10, and a low score on NWOM factor 1, with the reverse pattern for "doves"). Tables 11C and 11D are similar to Table 11B, but compare, respectively, female hawks with female doves, and male hawks with male doves, and the generalizations in them are based on the same NWOM factors as was the case for Table 11B.

These, then, constitute the most general profiles that can be drawn, based on these data, of male and female "hawks" and "doves." Hypotheses for why these particular characteristics are connected with these polar positions are discussed above in this chapter. As can be seen from Tables 11C and 11D, male doves seem to come from a different economic background from that of female doves, and the same seems to hold true for male and female hawks. There seems to be some similarity among the doves in their satisfaction in involvements with others.

TABLE 11B  
 Differences between Nuclear  
 "Hawks" and "Doves," Regardless of Sex

Correlate	Doves	Hawks
Political Belief	Liberal	Conservative
Defenses	Deny Aggression	Express Aggression
Age	Younger	Older
Orientation towards Others	Nurturant	Unemotional, Dominant
Afterlife Belief	High	Low
Level of Positive Affect	High	Low

TABLE 11C

Differences between Female Nuclear "Hawks" and "Doves"

Correlate	Female Doves	Female Hawks
Level of Negative Affect	High	Low
Satisfaction-Family Life	High	Low
Locus of Control	Low-Powerful Others	High-Powerful Others
Economic Level	Lower	Higher

TABLE 11D

Differences between Male Nuclear "Hawks" and "Doves"

Correlate	Male Doves	Male Hawks
General Satisfaction	High	Low
Satisfaction-Friendships	High	Low
Use of Projection	Lower	Higher
Economic Level	Higher	Lower
Parent Occupational Status	White Collar/ Professional	Blue Collar

### Concluding Remarks

The aim of this study was to develop an instrument to measure attitudes about nuclear war and nuclear weapons, and to use that instrument to examine the relationships between a variety of personality and demographic variables, and nuclear war/weapons attitudes. Numerous tentative explanations have been put forth to account for the variety of findings uncovered in this study; a number of findings have been left unexplained where no plausible hypothesis was able to be furnished.

This study has, in essence, constituted a very preliminary empirically-oriented inquiry into the psychology of nuclear war/weapons attitudes, and has been successful in generating considerable amounts of data in an area that is very underresearched. Although many significant, and probably reliable relationships between nuclear war attitudes and the correlates employed here have emerged, their absolute magnitude has, for the most part, been relatively small. However, even assuming that the measurements of these relationships would not have been greater if better instruments had been used or if other forms of error had been controlled for (a big assumption indeed), at the very least, we can conclude that personality and related variables have, at minimum, some influence in the formation of a variety of nuclear war/weapons attitudes.

The influence of personality upon nuclear war/weapons attitudes seems to vary, both quantitatively and qualitatively, between the



sexes - some aspects of personality (e.g., political attitudes) seem to play a very large role in influencing nuclear war attitudes for males, and a relatively minimal role for females, whereas others, such as locus of control, seem to influence females on nuclear war/ weapons attitudes to a greater extent than they influence males. Other variables, such as demographic variables, seem to have been important to a similar extent for both males and females, but have largely influenced their nuclear war/weapons attitudes in different ways. The reasons for these unanticipated differential influences upon the sexes are for the most part unclear.

Far more questions have resulted from this research than have been answered by it. What is the actual (as opposed to the hypothetical) relationship behind each of the major correlations of Table 7 above? What are the reasons for the many sex differences obtained? What is the precise relationship between defense mechanisms and nuclear war attitudes, and how does the relationship work? These are just a few of the possible questions that can be asked regarding these data, with an eye to future research.

Regarding the Nuclear Weapons Orientation Measure (NWOM) specifically, any number of paths of research could be taken. The scales as they are require more factorially compatible items to be added to them, and more nuclear war/weapons scales could be added. (in particular, I think a flexible use scale should be developed to measure the thresholds above and below which people advocate the use of nuclear weapons). In addition, more work on the validity and

the reliability of this measure needs to be done. It would be interesting to see what the test-retest reliabilities of these scales are over time, and what influences affect their degree of reliability. Also, clearly, the factor structure of the NWOM, as well as its relationship to other variables could be examined while varying the samples involved: different areas of the country, different age ranges, different countries, or different extreme groups, for example.

The area of the psychology of nuclear war/weapons attitudes is one of major importance and with major implications. Speaking broadly, this topic concerns the psychological processes behind the perceptions, and ultimately the use, of nuclear weapons. If nuclear war-/weapons-related perceptions (and therefore, potential use) can be influenced by non-rational factors (a hypothesis which this study supports empirically) then that represents, as it were, another chink in the armor of deterrence (a doctrine which assumes the rationality of those involved). Therefore, one hope for this kind of research is that it may give us a greater comprehension of the psychological distortions that may influence our perceptions of, our control of, and even our use of nuclear weapons. From a number of vantage points, this may be able to contribute to making nuclear war less likely.

APPENDIX A

OPEN-ENDED NUCLEAR WAR/WEAPONS QUESTIONS

## OPEN-ENDED NUCLEAR WAR/WEAPONS QUESTIONS, FORM I

- 1) What are your thoughts and opinions on nuclear war and nuclear weapons?
- 2) a) In your opinion, what is the best that we can realistically expect to occur with regard to nuclear weapons, over the next 75 years?  
b) In your opinion, what is the worst that we can realistically expect to occur with regard to nuclear weapons, over the next 75 years?
- 3) What moral or religious ideas concerning nuclear war or nuclear weapons are you aware of?
- 4) Have you ever engaged in any political activity taking a position on nuclear war or nuclear weapons? If so, what kind?
- 5) What are your views on nuclear disarmament?
- 6) Under what circumstances should the U.S. make reductions in nuclear weapons, and to what extent should it do so?
- 7) What are your thoughts on previous uses, or near uses, of nuclear weapons?
- 8) What forms of nuclear terrorism, if any, do you think may occur in the future?
- 9) How do you think people in the U.S., in general, feel about nuclear weapons?
- 10) a) What do you believe should be done to minimize the damage from a nuclear war before one begins?  
b) What do you believe should be done to minimize the damage from a nuclear war after one begins?
- 11) a) What do you think about the nuclear weapons tests that are performed by the U.S.?  
b) What do you think about the nuclear weapons tests that are performed by the Soviet Union?
- 12) How does the U.S. compare to other countries in terms of nuclear weapons?
- 13) How do you think Soviet leaders view arms limitations talks and treaties?
- 14) How do you think \_\_\_\_\_ views nuclear war and nuclear weapons?  
a) Mainland China b) India c) England d) France e) Germany
- 15) a) Describe a situation involving the hostile use of nuclear weapons within the next 50 years that you think is at least somewhat likely.  
b) Describe what you think recovery would be like after this event.

## OPEN-ENDED NUCLEAR WAR/WEAPONS QUESTIONS, FORM II

- 1) In your opinion, what impact have nuclear weapons had on human life and society?
- 2) What do you think are the most important facts regarding nuclear war and nuclear weapons?
- 3) How might a full-scale nuclear war occur, and what events do you anticipate would happen during it?
- 4) What might the world be like, and what might recovery be like, after nuclear war?
- 5) Has the prospect of nuclear war affected your personal life in any way, and if so, how?
- 6) What are your attitudes about political dissent and nuclear weapons?
- 7) Is it possible for any country to win a nuclear war, and if so, how?
- 8) What are your views on nuclear deterrence?
- 9) What are your views on limited nuclear war?
- 10) Under what circumstances should nuclear weapons be used, and how should they be used?
- 11) What are your views on any current U.S. nuclear policies that you are aware of?
- 12) What do you believe should be done to prevent nuclear war?
- 13) Think of one or two countries now possessing nuclear weapons.... Which did you think of?....What do you expect would occur if they were to destroy all of their nuclear weapons without other countries doing the same?
- 14) How should the U.S. respond to the Soviet Union upon discovering that many of its nuclear missiles were definitely heading towards the U.S.?
- 15) What are your views on any current Soviet nuclear policies that you are aware of?
- 16) How does the government of \_\_\_\_\_ view nuclear war and nuclear weapons?
  - a) the Soviet Union
  - b) Israel
  - c) Saudi Arabia
  - d) Iran
  - e) South Africa
- 17) What consequences, if any, do you foresee as a result of additional countries obtaining/developing nuclear weapons?

APPENDIX B

POOL OF 118 NUCLEAR WAR/WEAPONS ATTITUDES ITEMS

NUCLEAR WAR/NUCLEAR WEAPONS QUESTIONNAIRE

Sex \_\_\_\_\_ Age \_\_\_\_\_ Nationality \_\_\_\_\_

INSTRUCTIONS: For the following alternatives, please use a "1" to indicate the one you believe to be the most desirable nuclear arms policy for the United States to pursue, a "2" to indicate the next most desirable U.S. nuclear arms policy, on up through "6", which would represent what you consider to be the least desirable nuclear weapons policy. Be sure to respond to each of these choices with a number or "rank" from "1" (most desirable) to "6" (least desirable).

- |  |       |
|--|-------|
| 1) Continuing to build nuclear weapons                 | _____ |
| 2) Bilateral nuclear freeze with the Soviet Union      | _____ |
| 3) Bilateral nuclear reductions with the Soviet Union  | _____ |
| 4) Unilateral nuclear freeze by the United States      | _____ |
| 5) Unilateral nuclear reductions by the United States  | _____ |
| 6) Unilateral abolition of nuclear weapons by the U.S. | _____ |

INSTRUCTIONS: Please circle the choice on the right of each of the following statements to indicate the extent to which you agree or disagree with it.

- |   | strongly<br>agree | agree | somewhat<br>agree | neutral | somewhat<br>disagree | disagree | strongly<br>disagree |
|---|-------------------|-------|-------------------|---------|----------------------|----------|----------------------|
| <u>The United States:</u>   |                   |       |                   |         |                      |          |                      |
| 7) should make reductions in some non-essential nuclear arms, to demonstrate its peaceful intentions, and to encourage the Soviet Union to do likewise. | 1                 | 2     | 3                 | 4       | 5                    | 6        | 7                    |
| 8) should attempt to develop a perfect defense system against nuclear weapons, such as the "star wars" idea.  | 1                 | 2     | 3                 | 4       | 5                    | 6        | 7                    |
| 9) should get tougher in its dealings with the Russians.  | 1                 | 2     | 3                 | 4       | 5                    | 6        | 7                    |
| 10) should be very clear with the Soviet Union about which Soviet actions would trigger a response with nuclear weapons from the U.S.                   | 1                 | 2     | 3                 | 4       | 5                    | 6        | 7                    |

- |  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
| 11) should negotiate with the Soviet Union to obtain equal and verifiable nuclear weapons reductions on both sides.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12) should never use any of its nuclear weapons.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13) should have used nuclear weapons in Viet Nam.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14) should put money into building a system of underground shelters in case of nuclear war.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15) should never disarm - it should keep its nuclear weapons at current or greater levels.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16) should freeze unilaterally the testing, production and installation of nuclear weapons, as an inducement to the Soviet Union to agree to a bilateral freeze. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17) is more to blame for the nuclear arms race than the Soviet Union.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18) should declare that it will never be the first to use nuclear weapons.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19) should not have any nuclear weapons at all.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20) should reduce nuclear arms to a minimum level unilaterally if unable to obtain a bilateral agreement to do so from the Soviet Union.                         | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21) would use its nuclear weapons to blackmail the Soviet Union if the Soviet Union got rid of its nuclear weapons without the U.S. doing likewise.              | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22) should use its smaller (tactical or battlefield) nuclear weapons if the Soviet Union attempts to invade Western Europe.                                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23) should keep on producing new, more advanced nuclear weapons while retiring older, out-of-date nuclear weapons.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24) should use nuclear weapons if there is any advantage to it in doing so.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Full-scale nuclear war between  
the United States and the Soviet Union:

- |  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
| 25) is far less likely than the prospect that small, third-world countries and/or terrorists will use nuclear weapons. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26) would end civilization as we know it.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |



- 27) is made more likely by the U.S. deployment of medium range missiles in Europe. 1 2 3 4 5 6 7
- 28) may be able to be prevented if the United States and its allies build communication and cultural bridges with the Soviet Union. 1 2 3 4 5 6 7
- 29) is more likely to occur if the United States falls behind the Soviet Union in nuclear weapons than if there is a build-up of nuclear weapons here and in the Soviet Union. 1 2 3 4 5 6 7
- 30) is inevitable once either the United States or the Soviet Union launch one or more nuclear weapons at the other side. 1 2 3 4 5 6 7
- 31) is made more likely by establishing civil defense preparations for nuclear war. 1 2 3 4 5 6 7
- 32) would very likely be the Armageddon (judgment day) that is described in the Bible. 1 2 3 4 5 6 7
- 33) would plunge the world into a "nuclear winter" which may be at least as devastating to life as the nuclear war itself. 1 2 3 4 5 6 7
- 34) would be preferable to living under Soviet domination. 1 2 3 4 5 6 7

Nuclear weapons:

- 35) should be outlawed altogether. 1 2 3 4 5 6 7
- 36) are responsible for the relative peace the world has enjoyed since the end of World War II. 1 2 3 4 5 6 7
- 37) are here to stay - they will never be gotten rid of completely. 1 2 3 4 5 6 7
- 38) are a necessary evil. 1 2 3 4 5 6 7
- 39) are produced in abundance in the United States as a result, to a great extent, of the greed of nuclear arms manufacturers. 1 2 3 4 5 6 7
- 40) will be used in the future by terrorists to hold whole countries hostage. 1 2 3 4 5 6 7

A nuclear war between two smaller countries:

- 41) might have a sobering effect upon the United States and the Soviet Union, and thus keep them from having a nuclear war between themselves. 1 2 3 4 5 6 7

- 42) could wipe out most of the world's population, even if neither the United States nor the Soviet Union were directly involved. 1 2 3 4 5 6 7

If full-scale nuclear war between the United States and the Soviet Union occurs:

- 43) you stand a better chance of surviving if you can manage to get away from densely populated areas. 1 2 3 4 5 6 7
- 44) more people would survive in the Soviet Union than in the United States. 1 2 3 4 5 6 7
- 45) one side could win. 1 2 3 4 5 6 7
- 46) I wouldn't want to live through it. 1 2 3 4 5 6 7

The leaders of the United States:

- 47) are not sufficiently aware of the realities and horrors of nuclear war. 1 2 3 4 5 6 7
- 48) place a much greater value on human life than do the leaders of the Soviet Union. 1 2 3 4 5 6 7
- 49) ignore the wishes of the American people by building up nuclear weapons. 1 2 3 4 5 6 7

The leaders of the Soviet Union:

- 50) view nuclear weapons as just another kind of weapon - just a bigger kind of bomb. 1 2 3 4 5 6 7
- 51) are ruthless. 1 2 3 4 5 6 7

The United States and the Soviet Union:

- 52) should have an agreement not to target cities with nuclear weapons. 1 2 3 4 5 6 7
- 53) must stop viewing each other as enemies. 1 2 3 4 5 6 7
- 54) should agree to joint action if another nation threatens to use nuclear weapons. 1 2 3 4 5 6 7
- 55) will never attack each other with nuclear weapons as long as each has similar nuclear weapons strength. 1 2 3 4 5 6 7

Most people in the United States:

- 56) view nuclear weapons as just another kind of weapon - just a bigger kind of bomb. 1 2 3 4 5 6 7
- 57) do not realize the degree of destruction that nuclear weapons are capable of. 1 2 3 4 5 6 7
- 58) would like the United States to be stronger than the Soviet Union in nuclear weapons. 1 2 3 4 5 6 7

The Soviet Union:

- 59) would blackmail the United States with its nuclear weapons if the U.S. got rid of its nuclear weapons without the Soviet Union doing likewise. 1 2 3 4 5 6 7
- 60) is responsible for much of the nuclear freeze movement in the United States. 1 2 3 4 5 6 7
- 61) would not have used nuclear weapons on the United States if they had developed them before the U.S. had. 1 2 3 4 5 6 7
- 62) believes it is impossible to win a nuclear war. 1 2 3 4 5 6 7
- 63) wants to control the whole world. 1 2 3 4 5 6 7
- 64) will be more willing to negotiate nuclear arms reductions if the United States is clearly superior in nuclear arms. 1 2 3 4 5 6 7
- 65) may attack the United States with nuclear weapons if it feels sufficiently threatened by the U.S. 1 2 3 4 5 6 7
- 66) would invade Western Europe were it not for the nuclear weapons of the United States. 1 2 3 4 5 6 7
- 67) is likely to abide by any nuclear weapons agreement that it signs with the United States. 1 2 3 4 5 6 7
- 68) is genuinely interested in slowing or stopping the arms race. 1 2 3 4 5 6 7
- 69) cannot be trusted. 1 2 3 4 5 6 7
- 70) is really an evil empire. 1 2 3 4 5 6 7

INSTRUCTIONS: Please circle the choice to the right of each of the following statements to indicate the extent of your agreement or disagreement with it.

- 71) My opinion of a political candidate is greatly influenced by his or her position on matters relating to nuclear war and nuclear weapons. 1 2 3 4 5 6 7
- 72) Ordinary citizens of the United States should not attempt to influence decisions of leaders about nuclear war and nuclear weapons, as these matters are too complex for them to really understand. 1 2 3 4 5 6 7
- 73) There is nothing I can do to prevent nuclear war. 1 2 3 4 5 6 7
- 74) I intend to engage in activity taking a stand on nuclear weapons in the near future. 1 2 3 4 5 6 7
- 75) The environmental effects from nuclear weapons testing constitute a grave threat. 1 2 3 4 5 6 7
- 76) The information regarding how to build a nuclear weapon is publicly available in the U.S. 1 2 3 4 5 6 7
- 77) Ordinary citizens can take action which will make nuclear war less likely. 1 2 3 4 5 6 7
- 78) The best way for the United States to maintain peace is for it to prepare for nuclear war. 1 2 3 4 5 6 7
- 79) Survivors of a full-scale nuclear war would suffer great genetic damage. 1 2 3 4 5 6 7
- 80) People should never break the law during protests concerning nuclear weapons. 1 2 3 4 5 6 7
- 81) Experts in military affairs will protect us from nuclear war. 1 2 3 4 5 6 7
- 82) If the Soviet Union were to launch nuclear missiles at the United States, the U.S. would be able to send up its own missiles, which would destroy the oncoming missiles in space. 1 2 3 4 5 6 7
- 83) The prospect of nuclear war has not affected my personal life greatly. 1 2 3 4 5 6 7
- 84) We should develop international rules regarding the use of nuclear weapons. 1 2 3 4 5 6 7

- 85) Most people in the U.S. are very frightened about the possibility of nuclear war. 1 2 3 4 5 6 7
- 86) Verification of whether the Soviet Union is complying with a nuclear arms limitation agreement is impossible. 1 2 3 4 5 6 7
- 87) Anti-nuclear protests make me very angry. 1 2 3 4 5 6 7
- 88) If more countries get nuclear weapons, the world will be more secure. 1 2 3 4 5 6 7
- 89) God won't allow nuclear weapons to be used. 1 2 3 4 5 6 7
- 90) I have never imagined myself dying in a full-scale nuclear war. 1 2 3 4 5 6 7
- 91) Many of the nuclear weapons being produced in the United States have been designed with the aim of being used in a first strike. 1 2 3 4 5 6 7
- 92) My fears about nuclear war have affected my plans for the future. 1 2 3 4 5 6 7
- 93) People could and should be educated on surviving a nuclear war. 1 2 3 4 5 6 7
- 94) If the Soviet Union fires many of its nuclear missiles at the United States, the U.S. should not respond by firing its own missiles back. 1 2 3 4 5 6 7
- 95) The use of nuclear weapons by any country or terrorist group, anywhere in the world, would lead to full-scale nuclear war between the United States and the Soviet Union. 1 2 3 4 5 6 7
- 96) In the event of full-scale nuclear war between the U.S. and the Soviet Union, the southern hemisphere and its people would be left pretty much unharmed. 1 2 3 4 5 6 7
- 97) I am worried about the possibility of full-scale nuclear war. 1 2 3 4 5 6 7
- 98) It was necessary and proper for the U.S. to drop the atomic bomb on Japan during World War II. 1 2 3 4 5 6 7
- 99) Children should not be taught in schools about the consequences of nuclear war. 1 2 3 4 5 6 7
- 100) I often think about the possibility of nuclear war. 1 2 3 4 5 6 7

INSTRUCTIONS: Please circle the choice below each statement that best describes your views.

101) The United States government spends \_\_\_\_\_ on nuclear weapons.

1	2	3	4	5	6	7
far too little	too little	almost enough	enough	more than enough	too much	far too much

102) After full-scale nuclear war, how long would radiation levels be deadly?

1	2	3	4	5	6	7
less than 1 week	1-4 weeks	1-6 months	6 months to 1 year	1-10 years	10-20 years	20+ years

103) The percentage of the human race likely to be alive one (1) year after full-scale nuclear war is:

1	2	3	4	5	6	7
90-100%	70-90%	50-70%	30-50%	10-30%	1-10%	none

104) How long might it take mankind and society to recover from a full-scale nuclear war?

1	2	3	4	5	6	7
less than 1 year	10-20 years	20-40 years	40-60 years	60-100 years	100+ years	never

105) The U.S. is \_\_\_\_\_ the Soviet Union in nuclear arms strength.

1	2	3	4	5	6	7
greatly ahead of	ahead of	somewhat ahead of	equal to	somewhat behind	behind	greatly behind

106) If I heard news about limits on nuclear weapons, I would feel:

1	2	3	4	5	6	7
much safer	safer	somewhat safer	as safe as before	somewhat less safe	less safe	much less safe

INSTRUCTIONS: Please circle the choice on the right of each of the following statements to indicate how likely or unlikely you think it is.

107) A nuclear war could be contained and limited, as an alternative to either conventional warfare or full-scale nuclear war.

1	2	3	4	5	6	7	8	9
	extremely likely	likely	somewhat likely	50/50	somewhat unlikely	unlikely	extremely unlikely	impossible

- 108) In the future, a small country will use nuclear weapons against another small country. 1 2 3 4 5 6 7 8 9
- 109) If the Soviet Union fired nuclear missiles at the United States, the U.S. would retaliate by firing its own missiles. 1 2 3 4 5 6 7 8 9
- 110) My own chances of surviving full-scale nuclear war between the U.S. and the Soviet Union. 1 2 3 4 5 6 7 8 9
- 111) The U.S. would use tactical (smaller, battlefield) nuclear weapons if the Soviet Union attempted to invade Western Europe. 1 2 3 4 5 6 7 8 9
- 112) In the future, the U.S. and the Soviet Union will agree to significant, verifiable, bilateral nuclear arms reductions. 1 2 3 4 5 6 7 8 9

Full-scale nuclear war between the United States and the Soviet Union could occur:

- 113) accidentally or by unauthorized launch. 1 2 3 4 5 6 7 8 9
- 114) as an escalation from a relatively minor event or situation. 1 2 3 4 5 6 7 8 9
- 115) by intentional first strike with nuclear weapons by a currently possessing country. 1 2 3 4 5 6 7 8 9

How likely do you think it is that the U.S. will get into a nuclear war:

- 116) within the next 5 years? 1 2 3 4 5 6 7 8 9
- 117) within the next 10 years? 1 2 3 4 5 6 7 8 9
- 118) within the next 50 years? 1 2 3 4 5 6 7 8 9

APPENDIX C

THE NUCLEAR WEAPONS ORIENTATION MEASURE (NWOM)



THE NUCLEAR WEAPONS ORIENTATION MEASURE (NWOM)

INSTRUCTIONS: Please circle the choice to the right of each of the following statements to indicate the extent to which you agree or disagree with it.

The United States:

	strongly agree	agree	somewhat agree	neutral	somewhat disagree	disagree	strongly disagree
1) should put money into building a system of underground shelters in case of nuclear war.	+3	+2	+1	0	-1	-2	-3
2) should, on its own, get rid of all of its nuclear weapons.	+3	+2	+1	0	-1	-2	-3
3) should use nuclear weapons if there is any advantage to it in doing so.	+3	+2	+1	0	-1	-2	-3
4) should declare that it will never be the first to use nuclear weapons.	+3	+2	+1	0	-1	-2	-3
5) should invest money in measures aimed at enabling its people and institutions to survive in the event of nuclear war.	+3	+2	+1	0	-1	-2	-3
6) should keep on producing new, more advanced nuclear weapons while retiring older, out-of-date weapons.	+3	+2	+1	0	-1	-2	-3
7) should negotiate with the Soviet Union to obtain equal and verifiable nuclear weapons reductions on both sides.	+3	+2	+1	0	-1	-2	-3
8) should make reductions in its nuclear weapons, even if other countries do not do the same.	+3	+2	+1	0	-1	-2	-3
9) should, on its own, stop testing, building, or putting into place nuclear weapons.	+3	+2	+1	0	-1	-2	-3
10) should reduce its nuclear weapons on its own - an agreement with the Soviet Union for equal nuclear weapons reductions on both sides is not necessary.	+3	+2	+1	0	-1	-2	-3
11) should never disarm - it should keep its nuclear weapons at current or greater levels.	+3	+2	+1	0	-1	-2	-3

The Soviet Union:

- |   |                     |
|---|---------------------|
| 12) cannot be trusted.  | +3 +2 +1 0 -1 -2 -3 |
| 13) is genuinely interested in slowing or stopping the nuclear arms race. | +3 +2 +1 0 -1 -2 -3 |
| 14) is not interested in controlling the whole world.                     | +3 +2 +1 0 -1 -2 -3 |
| 15) believes it is possible to win a nuclear war.                         | +3 +2 +1 0 -1 -2 -3 |
| 16) really is an evil empire.   | +3 +2 +1 0 -1 -2 -3 |

INSTRUCTIONS: Please circle the choice to the right of each of the following statements to indicate the extent to which you agree or disagree with it.

- |   |                     |
|---|---------------------|
| 17) It would be better for the U.S. to keep its nuclear weapons at current or greater levels, than for it to have an agreement with the Soviet Union for equal reductions in nuclear weapons on both sides. | +3 +2 +1 0 -1 -2 -3 |
| 18) Most people in the United States view nuclear weapons as just another weapon - just a bigger kind of bomb.  | +3 +2 +1 0 -1 -2 -3 |
| 19) Nuclear weapons are here to stay - they will never be gotten rid of completely.   | +3 +2 +1 0 -1 -2 -3 |
| 20) If full-scale nuclear war between the U.S. and the Soviet Union occurs, you stand a better chance of surviving if you can manage to get away from densely populated areas.                              | +3 +2 +1 0 -1 -2 -3 |
| 21) Most people in the United States do not realize the degree of destruction that nuclear weapons are capable of.  | +3 +2 +1 0 -1 -2 -3 |
| 22) I am worried about the possibility of full-scale nuclear war.   | +3 +2 +1 0 -1 -2 -3 |
| 23) The leaders of the Soviet Union are ruthless.   | +3 +2 +1 0 -1 -2 -3 |
| 24) Ordinary citizens can take action which will make nuclear war less likely.  | +3 +2 +1 0 -1 -2 -3 |
| 25) I often think about the possibility of nuclear war.   | +3 +2 +1 0 -1 -2 -3 |

- 26) The best nuclear weapons choice for the U.S. would be an agreement for equal nuclear weapons reductions between itself and the Soviet Union. +3 +2 +1 0 -1 -2 -3
- 27) If full-scale nuclear war between the U.S. and Soviet Union occurs, you stand a better chance of surviving if you are living in a sparsely populated neutral country. +3 +2 +1 0 -1 -2 -3
- 28) A nuclear war could be contained and limited, as an alternative to either conventional warfare or full-scale nuclear war. +3 +2 +1 0 -1 -2 -3
- 29) The information regarding how to build a nuclear weapon is publicly available in the United States. +3 +2 +1 0 -1 -2 -3
- 30) The prospect of nuclear war has not affected my personal life greatly. +3 +2 +1 0 -1 -2 -3
- 31) Most people in the United States are not genuinely worried about the possibility of nuclear war. +3 +2 +1 0 -1 -2 -3
- 32) I have never imagined myself dying in a full-scale nuclear war. +3 +2 +1 0 -1 -2 -3
- 33) Verification of whether the Soviet Union is complying with a nuclear arms limitation agreement is impossible. +3 +2 +1 0 -1 -2 -3
- 34) Ordinary citizens of the U.S. should not attempt to influence decisions of leaders about nuclear war and nuclear weapons - these matters are too complex for them to really understand. +3 +2 +1 0 -1 -2 -3
- 35) People could and should be educated on surviving a nuclear war. +3 +2 +1 0 -1 -2 -3
- 36) There is nothing I can do to prevent nuclear war. +3 +2 +1 0 -1 -2 -3
- 37) Nuclear weapons should be outlawed altogether. +3 +2 +1 0 -1 -2 -3
- 38) Full-scale nuclear war between the U.S. and the Soviet Union may be able to be prevented if the U.S. and its allies build communication and cultural bridges with the Soviet Union. +3 +2 +1 0 -1 -2 -3
- 39) The U.S. and the Soviet Union should come to an agreement to stop testing, building or installing additional nuclear weapons. +3 +2 +1 0 -1 -2 -3

- 40) If full-scale nuclear war between the U.S. and the Soviet Union occurs, I hope that I am in a relatively unpopulated area at the time. +3 +2 +1 0 -1 -2 -3
- 41) The best way for the U.S. to maintain peace is for it to prepare for nuclear war. +3 +2 +1 0 -1 -2 -3
- 42) I think it would be worthwhile to engage in activity taking a stand on nuclear weapons. +3 +2 +1 0 -1 -2 -3
- 43) Most people in the U.S. would like the U.S. to be stronger than the Soviet Union in nuclear weapons. +3 +2 +1 0 -1 -2 -3
- 44) My opinion of a political candidate is greatly influenced by his or her opinion on matters relating to nuclear weapons. +3 +2 +1 0 -1 -2 -3
- 45) Full-scale nuclear war between the U.S. and the Soviet Union would end civilization as we know it. +3 +2 +1 0 -1 -2 -3

INSTRUCTIONS: Please circle the choice that best describes your views.

- 46) The U.S. government spends \_\_\_\_\_ on nuclear weapons.

1	2	3	4	5	6	7
far too little	too little	almost enough	enough	more than enough	too much	far too much

- 47) How long might it take mankind and society to recover from a full-scale nuclear war?

1	2	3	4	5	6	7
less than 1 year	10-20 years	20-40 years	40-60 years	60-100 years	100+ years	never

- 48) The percentage of the human race likely to be alive one year after full-scale nuclear war is:

1	2	3	4	5	6	7
none	1-10%	10-30%	30-50%	50-70%	70-90%	90-100%

(to next page)

	certain	extremely likely	likely	somewhat likely	50/50	somewhat unlikely	unlikely	extremely unlikely	impossible
49) In the future, a small country will use nuclear weapons against another small country.	+4	+3	+2	+1	0	-1	-2	-3	-4
50) My own chances of surviving full-scale nuclear war between the U.S. and the Soviet Union.	+4	+3	+2	+1	0	-1	-2	-3	-4
51) How likely do you think it is that the U.S. will get into a nuclear war within 5 years?	+4	+3	+2	+1	0	-1	-2	-3	-4
52) Full-scale nuclear war between the U.S. and the Soviet Union could occur accidentally or by unauthorized launch.	+4	+3	+2	+1	0	-1	-2	-3	-4
53) Nuclear weapons will be used within the next 50 years by small countries or terrorists.	+4	+3	+2	+1	0	-1	-2	-3	-4
54) If full-scale nuclear war between the U.S. and the Soviet Union occurs, more people would survive in the Soviet Union than in the U.S.	+4	+3	+2	+1	0	-1	-2	-3	-4
55) How likely do you think it is that the U.S. will get into a nuclear war within 10 years?	+4	+3	+2	+1	0	-1	-2	-3	-4
56) Full-scale nuclear war between the U.S. and the Soviet Union could occur as an escalation from a relatively minor event or situation.	+4	+3	+2	+1	0	-1	-2	-3	-4
57) The Soviet Union will abide by any nuclear weapons agreement that it signs with the U.S.	+4	+3	+2	+1	0	-1	-2	-3	-4
58) Nuclear weapons will be used in the future by terrorists to hold whole countries hostage.	+4	+3	+2	+1	0	-1	-2	-3	-4

59) How likely do you think it is that  
the U.S. will get into a nuclear  
war within 50 years.

+4 +3 +2 +1 0 -1 -2 -3 -4

60) The Soviet Union would invade  
Western Europe were it not for  
the nuclear weapons of the U.S.

+4 +3 +2 +1 0 -1 -2 -3 -4

APPENDIX D  
DEMOGRAPHIC QUESTIONNAIRE

RESEARCH - NUCLEAR WAR/WEAPONS ATTITUDES

INSTRUCTIONS: Please fill in the information requested below.

Sex \_\_\_\_\_ Age \_\_\_\_\_ Major \_\_\_\_\_ Last Grade Completed \_\_\_\_\_

1) What were your parents' occupations while you were growing up?

Father \_\_\_\_\_ Mother \_\_\_\_\_

2) To which political party do you belong? (check one)

\_\_\_\_ Republican \_\_\_\_ Democratic \_\_\_\_ Independent \_\_\_\_ Unaffiliated

Other (which?) \_\_\_\_\_

3) How politically conservative are you? (check one)

\_\_\_\_ very conserv. \_\_\_\_ conservative \_\_\_\_ somewhat conserv. \_\_\_\_ slightly conserv. \_\_\_\_ not at all conserv.

4) How politically liberal are you? (check one)

\_\_\_\_ very liberal \_\_\_\_ liberal \_\_\_\_ somewhat liberal \_\_\_\_ slightly liberal \_\_\_\_ not at all liberal

5) In which country(s) did you live from birth to age 16?

\_\_\_\_\_

6) What is your religion? \_\_\_\_\_

7) How important is religion to you? (check one)

\_\_\_\_ very import. \_\_\_\_ important \_\_\_\_ somewhat import. \_\_\_\_ slightly import. \_\_\_\_ not at all import.

8) How strongly do you believe in an afterlife? (check one)

\_\_\_\_ very strongly \_\_\_\_ moderately \_\_\_\_ slightly \_\_\_\_ don't know \_\_\_\_ don't believe

9) What was your family's economic level while you were growing up? (check the appropriate space)

poor \_\_\_\_\_ (---middle class---) \_\_\_\_\_ upper class

10) Please list, in order of importance, what you consider the three most important problems in the world today.

1) (most important) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_



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## VITA AUCTORIS

Michael Rockowitz was born on December 1, 1951 in Brooklyn, New York. In June, 1969, he graduated from Francis Lewis High School in Queens, New York. In June, 1976, he graduated from Queens College of the City University of New York, and in April, 1980, he earned his Masters of Arts degree at the University of Windsor. He completed an internship at Genessee County Community Health in Flint, Michigan in 1980, and has worked since then in community mental health settings both as an emergency services clinician, and as a staff psychologist.

Michael Rockowitz is married to the former Jill Laufer.

**END**

1	1	0	3	8	6
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**FIN**



