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A Cross-Cultural Test of the Fishbein Model of Behavioral Intentions

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INTRODUCTION

As Malpass(1977) pointed out, cross-cultural psychology can be regarded as a methodological strategy. It gives the researcher a means of evaluating hypotheses of unicultural origin with evidence of more cross-cultural relevance, and it also helps him to develop new theoretical explanations of phenomena through a broad sampling over various cultures. As a methodological strategy, however, it raises some difficult problems. One of them has been labeled the "etic-emic dilemma" (Berry, 1969).

Etic-Emic Dilemma

This dilemma comes from the difficulty in describing behavior when one designs a cross-cultural study. According to Pike (1966), there are two approaches to the cross-cultural study. The "emic" approach describes behaviors occurring in a given culture in terms of only concepts used in that culture. The "etic" approach describes behaviors using external criteria imposed by the researcher. The dilemma is: the "emic" approach may give adequate within-culture descriptions of a phenomenon, but they are no longer cross-culturally comparable. On the other hand, the "etic" approach may provide cross-culturally comparable concepts, but it can cause the loss of the essential aspects of the phenomenon under study.

Triandis, Malpass, and Davidson (1972; 1973) discussed several solutions to the dilemma. One frequently used solution is simply to assume that emic measures are etic. However, this solution has been criticized as a "pseudoetic" approach because in this approach emic measures developed in one culture are simply translated and used in other cultures without showing the validity or relevance of the measures in new cultures. The other solution developed by these authors is called a "combined etic-emic" approach.

This approach dictates three stages of cross-cultural research. First, an etic construct which seems to have universal status is chosen. Second, emic measures of this construct are developed. Third, this emically measured etic construct is used in making cross-cultural comparisons. In this approach emic measures may be different from culture to culture, but meaningful cross-cultural comparisons could still be made because the emic measures were developed to measure the same etic concept. Though there exists a possible danger that the etic may be lost in developing emic measures within each culture as Brislin (1976) pointed out, this approach provides more defensible methodology in cross-cultural study, especially employed in the "cultural similarities" approach as we point out later.

Equivalence of Measures

Another major problem in cross-cultural study is to demonstrate the equivalence of measures. According to Poortinga (1975), there are two types of test equivalence. Functional equivalence is obtained when a test measures the same attribute in different groups of people. Score equivalence is obtained when the test measures not only the same attribute but also with the same quantitative scale in different groups of people. Score equivalence means that if two persons from different cultures got the same score, they are said to have the same amount of the attribute tested.

It seems that it is possible to get a good degree of functional equivalence in cross-cultural study by carefully employing a "combined etic-emic" approach, but it is hardly possible to achieve score equivalence because of many variables which come into the cross-cultural testing situations. These variables include differences in response sets, unequal familiarity with test materials, differences in understanding of the test situations, test formats, and instructions and so on (Davidson, 1977).

The lack of score equivalence makes it impossible to make meaningful comparisons in mean scores between cultures. Therefore, we face a serious question, that is: "If mean comparison is meaningless in cross-cultural study, what kind of cross-cultural study is acceptable? or how should we conduct a meaningful cross-cultural study?" One insightful solution to this question would be to conduct a theory-oriented cross-cultural study. This strategy which is called a "cultural similarities" approach has been excellently discussed by Triandis and his colleagues (Triandis, Malpass, and Davidson, 1972; Davidson, 1979). We will now examine the logic of this approach.

"Cultural Differences" versus "Cultural Similarities" Approach

Triandis and his colleagues have distinguished two kinds of cross-cultural study, that

is: "cultural differences" approach and "cultural similarities" approach. These two approaches start with different research objectives. The researcher who adopts the "cultural differences" approach primarily wants to investigate the effects of cultural factors on human behavior. This objective leads him to trying to demonstrate cultural differences in the dependent variable, and mean comparisons between cultural groups are usually used for this purpose. As we showed above, mean comparison without score equivalence is of little value, and score equivalence is very difficult to obtain in cross-cultural study. In addition to the equivalence of measurement problem, this approach also suffers a serious sampling problem. Since in this approach a culture usually makes a sampling unit, each culture sampled provides only one observation. Therefore, unless the researcher samples quite a few cultures, the power of the statistical data decreases and also the effects of other confounding variables can not be effectively controlled.

The "cultural similarities" approach alleviates these problems. This approach serves the objective of testing the universality of a theory or establishing the boundary conditions for the theory (Willer, 1967). Therefore, the researcher is no longer looking at the mean differences between cultures. Instead he is looking at the relations among variables within each culture. This, Davidson (1979) argues, brings some important advantages. First, since mean comparison between cultural groups is not made, only functional equivalence of measures is required. Second, sampling problems become less severe because in this approach the sampling unit is not at the cultural level but at the individual level in each culture. Actually the researcher doesn't have to sample many cultures because the concern in this approach is not to obtain variance on a variable under study but to select groups which will give most stringent test of the generalizability of the theory. Third, cultural differences can often be meaningfully interpreted because they tend to accompany cultural similarities in other relations. As Campbell (1964) pointed out, differences between groups are only interpretable against a background of considerable similarity. Only with a demonstration of considerable similarity we can eliminate many of the alternative hypotheses which could plausibly account for this difference.

Fishbein's "Behavioral Intention" Model

The present study is primarily concerned with the test of Fishbein's "behavioral intention" model (Fishbein, 1967) in five different countries. Since Lapiere's study (1934) on racial prejudice, many researchers have reported low or non-significant relations between attitudinal predictors and behavioral criteria (Wicker, 1969). These negative reports, however, as Davidson and Jaccard (1979) pointed out, prompted efforts to find out variables that moderate attitude-behavior relation rather than discouraged

attitude research. The Fishbein model represents one of these efforts.

According to Fishbein (Ajzen and Fishbein, 1977), high correspondence between attitudinal and behavioral entities is necessary for a strong attitude-behavior relation. That is, we can get a good degree of predictive accuracy only when we measure attitude toward the act for the prediction of a specific behavior or when we measure a global attitude toward an object for the prediction of a multiple-behavior criterion. Fishbein and Ajzen (1975) also argued that behavioral intention is a strong predictor for the behavior if there is a high correspondence in the level of specificity between them, and also there is no intervention which alters the intention.

Behavioral intention is predicted from two components; a person's attitude toward performing the behavior and the influence of his social normative environment on the behavior. Algebraically the model is expressed as follows:

$$BI = (\sum_{i=1}^{n} B_iE_i)\, W_1 + (\sum_{i=1}^{m} NB_iMC_i)\, W_2$$

where BI = the behavioral intention to perform the behavior in question, B_i = the belief (perceived probability) that performing the behavior will lead to some consequence X_i, E_i = the evaluation of X_i, n = the number of salient consequences, NB_i = the perceived expectation of referent i, MC_i = the motivation to comply with referent i, m = the number of salient referents, and W_1 and W_2 = empirically determined regression weights.

In the present study one of our aims is to test the cross-cultural generality of the Fishbein model. By the cross-cultural generality it does not mean that the weight of each component in the equation should be the same for different cultures. It means that the components in the equation should be able to account for a significant proportion of variance in BI consistently over different cultures. When the Fishbein model was tested concerning family planning behaviors in a sample of married American women, the two components in the model (ΣB_iE_i and ΣNB_iMC_i) accounted for an average of 60% of the variance in BI (Davidson and Jaccard, 1975). Our concern here is to see whether a significant degree of accountability could be shown in other cultures.

Also there have been arguments that a person's own belief about what he ought to do with regard to the behavior of interest is an important component of BI and therefore is useful in the prediction of BI (Schwartz and Tessler, 1972; Triandis, Malpass, and Davidson, 1972; Triandis, 1975). This component, like the second component (ΣNB_iMC_i) of the Fishbein model, deals with the normative aspect. However, it is different from the second component in that it represents personal normative belief (PNB), i.e., a

person's own moral obligation while the second component represents his social normative environment. One previous study (Jaccard and Davidson, 1975) showed somewhat equivocal results. In their study in which behavioral intentions with regard to the family planning behaviors were predicted for the sample of American women there was a tendency for the PNB component to improve the prediction of BI, but these increases were never substantial. Therefore, our second aim in the present study is to see whether the PNB component contributes to the prediction of BI much enough to claim its status in the Fishbein model for various cultures.

Also in the Fishbein model, as a definition, any variables other than attitudinal and normative components are assumed to influence BI only through these two components (Davidson and Jaccard, 1979). Therefore, if the model is correct, there will be no significant direct influence of demographic variables such as education, socio-economic status, and age upon BI. From Jaccard and Davidson's study (1975) attitudinal and normative components in the Fishbein model were quite successful in moderating the effects of demographic variables on family planning intentions. Therefore our third aim in the present study is to confirm their results in the context of various cultures.

Domain of Behavioral Intention

The domain of behavioral intention for the present study is concerned with the use of various contraceptive methods. Recently Davidson and his colleagues performed several studies on the prediction of fertility-relevant behavior (Davidson and Jaccard, 1975; Davidson, Jaccard, Triandis, Morales, and Diaz-Guerrero, 1976; Davidson and Jaccard, 1979). Cognitive models, either the Fishbein model or the Triandis model, were used in their studies and proved to be very useful in predicting fertility-relevant behavior and also behavioral intention. Samples in their studies were usually American women except one study (Davidson, Jaccard, Triandis, Morales, and Diaz-Guerrero, 1976) which included Mexican women sample in addition to American women. The present study can be regarded as a continuation of their studies because it not only deals with the testing of a cognitive model in the domain of fertility-relevant behavior, and therefore gets much insight and knowledge from those studies in designing the procedure, but also it attempts to extend the findings from their studies beyond American culture through broad sampling from different cultures.

In summary, our major aim in the present study was to test the validity of the Fishbein behavioral intention model for various cultures. If we can show the validity of the model consistently for various cultures which have different religions, geographies, population policies, etc., it will strengthen the model. It was done in the following three ways.

First, we examined how well the model predicted BI, i.e., how much the two components (ΣB_iE_i and ΣNB_iMC_i) accounted for the variance in BI. Second, personal normative belief (PNB) component borrowed from the Triandis model of social behavior was added to the Fishbein model and we examined how much the new component improved on the prediction of BI. Third, several demographic variables were added to the Fishbein model and we tested whether attitudinal and normative components in the model sufficiently moderated the effects of these variables on BI.

METHOD

Overview of the Research Strategy

The present study was drawn from the larger study which was conducted by Davidson, Ahn, Chandra, Diaz-Guerrero, Dubey, and Mehryar in five different countries (Mexico, Iran, Korea, Fiji, India), and was founded by the United Nations.

The study was composed of two stages of surveying:

1. Survey I of Potential Users of Male Fertility Regulation Methods (FRMs).

The purpose of this survey was to identify the salient respondent-defined attributes of male FRMs. Open-ended elicitation questionnaires were used in this survey. The same sampling frame was utilized in Survey I and Survey II. The sample size was 40 at each site.

2. Survey II of Potential Users of Male FRMs.

Survey II provided the data of main interest in this project. The acceptability of the attributes which were obtained in Survey I was measured in this stage. Demographic variables and variables in the model were also measured. The research instrument was pretested on 40 males at each site. The sample size in Survey II was: Mexico=350; Iran=300; Korea=353; Fiji=350; India=350.

Measurement Procedures

The following basic decisions on the measurement procedures were made by the principal investigators at initial planning meetings:

1. The basic data would be obtained through interviews.
2. Comparable data would be collected in several countries;
3. Salient respondent-defined attributes of male methods would be included in Survey II.
4. Due to the hypothetical nature of many of the responses, every effort would be made to determine the reliability and internal consistency of the measures.

Survey Instruments. The instruments utilized in Survey I and Survey II focused on the acceptability of attributes of existing (condom, vasectomy) and potential (male daily pill and male monthly injection) FRMs. As practically all of the respondents were unfamiliar with the potential FRMs, and many were unfamiliar with vasectomy, it was necessary to include a brief description of these methods. Since these descriptions were bound to definitely influence responses they were carefully designed on the basis of consultation with biomedical scientists in the United Nations, World Health Organization, Male Methods of Fertility Regulation Task Force.

The descriptions of the two potential methods and vasectomy were:

Description of male daily pill: Scientists and doctors are developing a pill that a man can take every day so that his wife would not get pregnant. The male pill is small and must be taken every day. However, if you forget to take the pill occasionally (once or twice a month), the method is still effective. The pills are claimed to be very effective, safe and do not reduce sexual desire. After a man stops taking the pill, it would probably take 2-3 months before he can make his wife pregnant. The pills come in a small package.

Description of male monthly injection: Scientists and doctors are developing an injection that a man can take so that his wife would not get pregnant. The injection must be taken every month. The injection is administered by a nurse, family planning field worker, pharmacist, or doctor. The injections are claimed to be very effective, safe and do not reduce sexual desire. After a man stops the injections, it would probably take 2-3 months before he could make his wife pregnant. The injections are equal in pain to most other injections.

Description of vasectomy: A vasectomy is a sterilization operation that a man can have so that his wife will not have more children. The vasectomy is a minor operation performed on the scrotum. A small incision, about 1 centimeter, is made in the scrotum and the tube carrying the sperm is cut or tied. The operation takes about 10 minutes to complete, and is usually performed by a medical doctor. The patient can go back to work the next day. The operation does not have any effect on a man's masculinity. That is, it does not reduce sexual desire. The operation is effective and safe. The operation is usually not reversible.

Survey I adopted an open-ended interview, which was designed to elicit the salient attributes of existing and potential male methods. Survey II instrument was constructed based on the responses obtained in Survey I. This strategy provided two important advantages: It helped to insure that the attributes and characteristics relevant to the population of interest were included. Also it helped to construct questionnaire items in a way that was most compatible with the vernacular used by the respondents in describing FRMs.

Performing content analyses of these responses at each site and then comparing these analyses between sites made it possible to identify a set of about 15 characteristics of

each method that were most frequently elicited across the five countries.

Survey II employed a precoded format which took 60-90 minutes to complete. Most of the measurement procedures were based on the semantic differential technique (Osgood, May, and Miron, 1975), the behavioral differential technique (Triandis, 1964), Likert scaling and rank ordering (see Edwards, 1957). To assess the reliability of the measures several questions were repeated in the questionnaire. Also to assess the internal consistency of these procedures key variables were measured using multiple procedures. Also measures of a number of background and life experience variables were included in the questionnaire.

Translation. Preliminary versions of all instruments were reviewed and revised at meetings of the principal investigators so that the probability that the content or structure of the instrument would be incompatible with the groups being studied could be decreased as much as possible. When the final form of the questionnaire was agreed upon it was carefully translated into the local language using the back translation method. At least two translators worked independently on this task—one translating from English to the local language and the second, who had not seen the original, translated from the local language back to English. Particularly difficult or ambiguous items discovered on the initial questionnaires were either revised or dropped from the later questionnaires. At each stage of translation conceptual equivalence rather than linguistic equivalence was sought.

Survey II was pretested on samples drawn from the same populations that were studied in the final survey. The pretest provided feedback on the adequacy of translation, comprehensibility of the items and the range and appropriateness of responses.

Interviewers. Much attention was given to the selection, training and supervision of the interviewers. Most interviewers selected had some experience in other fertility or family planning surveys. Also, in most cases the same interviewers were involved in both of Survey I and Survey II in order to guarantee some level of expertise during the administration of Survey II. During the interviewer training, emphasis was put upon supervised practice interviewing and the establishment of rapport with respondents.

Sampling

The following basic decisions on the sampling strategy were made by the principal investigators at initial planning meetings:

1. Data would be obtained from several countries;
2. Contrasting groups would be studied in each country;

3. Interviews with non-sterilized married men would provide the basic data;
4. To the extent possible, the sampling procedures would be comparable among countries; and
5. Interviewer bias in the sample selection would be minimized.

The Study of Contrasting Groups. One aim of the original study (which wasn't included in the present analysis of the data) was to investigate the effect of major life experience variables on the acceptability of male FRMs. It was thought that the best way to obtain adequate variation on a number of these variables (e.g., education, socio-economic status, urban-rural, etc.) from the limited size of samples, was to study contrasting groups in each country. For this purpose three contrasting groups (rural, urban-low SES, and urban-middle SES) were selected. The sample size was: rural (n=150 except Iran; n=101), urban-low SES (n=100 except Korea; n=104), urban-middle SES (n=100 for Mexico, Fiji and India, n=99 for Iran and Korea).

It should be mentioned that national samples of men were neither intended nor obtained. For five countries included in the study, to obtain national representative samples was practically impossible with given limited resources. Therefore, the results of this research should not be assumed to represent national opinions.

Selection of Villages. Within each country, the villages to be studied were selected from one administrative region, as follows:

Fiji	Southern zone
India	Utter Pradesh
Iran	Fars Province
Mexico	State of Mexico
Republic of Korea	Kyunggi Province

Since there is much variation in the characteristics of villages both within each country and among countries, it was not possible to use solely demographic criteria in the definition of a village. Therefore, a set of flexible guidelines was developed to select areas for inclusion in the study. These guidelines were based upon two of the central characteristics of a village–primary reliance on an agricultural economy and relative isolation from urban centers.

The guidelines for village selection were:

1. The vast majority of the adult male population is employed in agriculture or animal husbandry;
2. Very few people (if any) work in an urban area with a population of more than 20,000;

3. Very few people (if any) go to an urban area with a population of more than 20,000 to sell products; and
4. Very few people (if any) go visiting and shopping to an urban area with a population of more than 20,000 more than once a week.

In order to reduce the probability that the findings would be wholly attributable to unusual family planning experiences, at least three villages were selected at each site for inclusion in the study. The researchers made an effort to select villages that were somewhat representative of the other villages in the area, in terms of such characteristics as religion and the educational level of inhabitants.

Selection of Urban Areas. The urban samples were collected from the following cities (the source for the population estimates is United Nations (1978) and refers to the city proper):

Delhi (including New Delhi), India –	1971 population = 3,589,684
Mexico City, Mexico –	1976 population = 8,628,024
Seoul, Republic of Korea –	1975 population = 6,879,464
Shiraz, Iran –	1976 population = 416,408
Suva, Fiji –	1976 population = 63,628

The cities were either in, or adjacent to, the administrative region from which the rural samples were drawn.

Within each city, two of middle SES and two of low SES neighborhoods (except Shiraz where only one low SES area was selected) were selected. An area was considered of low SES if most residents (a) had unskilled jobs, and (b) had little or no education. An area was considered of middle SES if most residents had jobs indicating middle SES (e.g., administrative personnel, clerical and sales workers, owners of small business, technicians, lesser professionals, etc.).

Selection of Respondents. The population of interest was non-sterilized married males under 45 years of age because for this group of people contraceptive decisions were considered to be most salient.

Since it was important to obtain samples of men who were representative of the areas from which they were selected, the following strategies were used. First, depending upon the size of the village or urban area, it was divided into a number of distinct units of approximately equal population. At least three units from each area were randomly selected. The households within each unit were first enumerated and then randomly sampled. The enumeration was based on either existing lists (e.g., voter lists, household lists) or a physical counting of households.

The same sampling frame was utilized in Survey I and Survey II because of the following several theoretical and practical advantages. First, the difficult task of constructing a sampling frame could be done only once. Second, familiarity with the areas and established rapport with the community leaders could be used in Survey II. Third, the questionnaires could be constructed and pretested on samples from the same population as the samples in the final data gathering effort.

RESULTS

Description of Samples

In the present study data on a number of demographic variables were obtained. They included husband's age, wife's age, number of children, husband's education, wife's education, literacy, husband's occupation, wife's occupation, and religion. Table 1 shows these demographic characteristics of the samples.

Table 1 indicates some differences in demographic variables among different cultural samples. Mean age of husbands is highest (35.8) in the Korean sample and lowest (31.0) in the Mexican sample. Similarily, mean age of wives is highest (32.4) in the Korean sample and lowest (27.6) in the Mexican sample. Wife's age is usually 3-4 years lower than husband's age except in the Iranian sample where the mean age difference between husbands and wives is 7.9. Mean number of children per family does not show much cross-cultural variation. It is highest (3.3) in the Iranian sample and lowest (2.3) in the Indian sample. Mean years of husbands' education is highest (9.9) in the Korean and lowest (5.5) in the Iranian sample. Similarly, mean years of wives' education is highest (8.6) in the Korean sample and lowest (4.3) in the Iranian sample. Literacy rate is highest (97.7%) in the Fijian sample and lowest (70.3%) in the Iranian sample. Across samples most of husbands hold occupations of low or middle level. A very small proportion of husbands (4.3-12.7%) are engaged in occupations of high level. Similarly, very few working wives (0.0-6.1%) hold occupations of high level. More than half of the wives (60.6-84.3%) in each sample are engaged only in their own housework without being paid and subsequently were excluded from Table 1. Religion is one of the demographic variables which shows much variation from culture to culture. In this study 89.4% of the Mexican sample are Roman Catholics, 94.3% of the Iranian sample are Moslems, 75.4% of the Fijian sample and 91.1% of the Indian sample are Hindus while 70.3% of the Korean sample have no religion at all.

Table 1. Descriptions of Samples

Demographic Variable		Country				
		Mexico	Iran	Korea	Fiji	India
Husband's age	Mean	30.971	35.731	35.781	32.160	33.489
	SD	6.675	7.263	5.119	6.074	7.326
Wife's age	Mean	27.617	27.856	32.433	27.874	29.332
	SD	6.458	6.500	5.635	5.561	7.418
Number of children	Mean	2.834	3.305	2.821	2.491	2.264
	SD	2.255	2.191	1.473	1.865	1.732
Husband's education	Mean	7.960	5.547	9.864	8.450	9.785
	SD	5.160	4.935	3.964	3.670	6.054
Wife's education	Mean	6.609	4.310	8.564	7.023	5.837
	SD	4.347	4.422	3.417	3.565	6.433
Literacy	Yes (%)	306	211	304	340	286
		(87.4)	(70.3)	(86.9)	(97.7)	(81.7)
	No (%)	44	89	46	8	64
		(12.6)	(29.7)	(13.1)	(2.3)	(18.3)
Husband's occupation	High (%)	44	17	15	18	44
		(12.7)	(5.7)	(4.3)	(5.2)	(12.6)
	Mid (%)	52	159	154	102	123
		(15.0)	(53.0)	(43.9)	(29.2)	(35.1)
	Low (%)	251	124	182	229	183
		(72.3)	(41.3)	(51.9)	(65.6)	(52.3)
Wife's occupation	High (%)	7		2	2	1
		(6.1)		(1.4)	(3.6)	(1.8)
	Mid (%)	46	33	68	45	46
		(40.0)	(52.4)	(48.9)	(81.8)	(83.6)
	Low (%)	62	30	69	8	8
		(53.9)	(47.6)	(49.6)	(14.5)	(14.5)
Religion	Buddhist(%)			41	4	2
				(11.6)	(1.1)	(0.6)
	Hindu (%)	1			264	319
		(0.3)			(75.4)	(91.1)
	Moslem (%)	1	283		42	14
		(0.3)	(94.3)		(12.0)	(4.0)
Roman	Catholic (%)	313	1	24	9	3
		(89.4)	(0.3)	(6.8)	(2.6)	(0.9)
	Protestant (%)	10		36	19	2
		(2.9)		(10.2)	(5.4)	(0.6)
	Jewish (%)	20	15			1
		(5.7)	(5.0)			(0.3)

Demographic Variable	Country				
	Mexico	Iran	Korea	Fiji	India
None (%)	5		248	1	1
	(1.4)		(70.3)	(0.3)	(0.3)
Other (%)		1	4	11	8
		(0.3)	(1.1)	(3.1)	(2.3)

Note: Education level is presented in terms of completed years of schooling. One's own housework in which many women in our sample are engaged is not included in the classification of the levels of occupation. The criterion for the classification of the levels of occupation is as follows: High = executives, business managers and professionals; Mid = administrative personnel, owners of small businesses, lesser professionals, clerical and sales workers and technicians; Low = manual employees, machine operators, small farm owners, semi-skilled employees, tenant farmer and unskilled employees.

Prediction of BI

$$BI = (\sum_{i=1}^{n} B_iE_i)W_1 + (\sum_{i=1}^{m} NB_iMC_i)W_2$$

Our major aim in the present study is to test the cross-cultural generality of the Fishbein model.

As seen in Table 2, the model fairly consistently predicted behavioral intentions to use various contraceptive methods across countries. With one exception (condom–Korea), the multiple correlations (Rs) ranged from a low of .514 to a high of .759 (all ps $< .01$) with a median of .628. There were some fluctuations in the magnitude of R across the methods and also across the countries but generally Rs were consistently high enough to confirm the hypothesis that the Fishbein model has substantial cross-cultural generality.

The data in Table 2 also suggest that both of the components in the Fishbein model are necessary for the prediction of BI. For each method and each country the correlation coefficients of the two components with BI were all significant (all ps $< .01$). Also, the standardized regression coefficients of both components with BI were all significant ($p < .05$). Though these two components were significantly intercorrelated (all ps $< .01$), they contributed independent variance to the prediction of BI, i.e., both components received significant regression weights in the prediction of each BI.

$$BI = (\sum_{i=1}^{n} B_iE_i)\, W_1 + (\sum_{i=1}^{m} NB_iMC_i)\, W_2 + (\sum_{i=1} PNB_i)\, W_3 .$$

Table 2. Correlations, Regression Coefficients, and Multiple Correlations of ΣB_iE_i and ΣNB_iMC_i on BI

Method	Country	Correlation Coefficients		Regression Coefficients		
		ΣB_iE_i –BI	ΣNB_iMC_i –BI	ΣB_iE_i –BI	ΣNB_iMC_i –BI	R for BI
Condom	Mexico	.388	.452	.262	.360	.514
	Iran	.554	.533	.372	.324	.615
	Korea	.319	.248	.287	.202	.376
	Fiji	.511	.540	.382	.424	.651
	India	.589	.601	.345	.379	.656
Fill	Mixico	.495	.570	.282	.431	.620
	Iran	.661	.410	.601	.128	.671
	Korea	.495	.513	.335	.367	.595
	Fiji	.552	.624	.367	.484	.710
	India	.512	.493	.348	.309	.575
Injection	Mixico	.508	.534	.318	.371	.599
	Iran	.680	.495	.596	.140	.689
	Korea	.498	.552	.347	.430	.640
	Fiji	.658	.650	.448	.433	.759
	India	.521	.548	.323	.379	.613
Vasectomy	Mexico	.502	.550	.327	.410	.624
	Iran	.565	.592	.331	.396	.649
	Korea	.508	.565	.320	.422	.633
	Fiji	.601	.672	.348	.493	.735
	India	.335	.608	.100	.566	.615

Note: All zero-order correlations, regression coefficients, and multiple correlations are significant ($p < .01$), with the exception of the ΣB_iE_i regression coefficient for vasectomy in India where $P < .05$. Abbreviations are as follows: BI = behavioral intention: ΣB_iE_i = one's beliefs about the consequences of performing a behavior multiplied by the evaluation of those consequences; ΣNB_iMC_i = one's normative beliefs multiplied by one's motivation to comply with those perceived norms.

As discussed earlier, there have been arguments that a personal normative belief (PNB) component will contribute to the prediction of BI independently of the two components in the Fishbein model. To test these arguments we added the PNB component to the model and examined whether the component improved on the prediction of BI enough to claim its status in the model.

Hierarchical regression method was used in this analysis. In the hierarchical method, variables are added to the regression equation in an order predetermined by the researcher (in the present analysis, in the order of ΣB_iE_i, ΣNB_iMC_i, and ΣPNB_i). Variables are

Table 3. R^2 Increments According to the Addition of the Personal Normative Belief (PNB) Component

Method	Condom					Pill					Injection					Vasectomy				
Country	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN
R before PNB added	514	615	376	651	656	620	671	595	710	575	599	689	640	759	613	624	649	633	735	615
R after PNB added	540	622	384	693	658	638	690	595	724	576	610	697	640	772	617	638	668	647	760	615
R^2 increment	028**	009*	006	056**	003	022**	027**	000	020**	002	013*	011*	000	021**	004	017**	025**	018**	037**	000

Note: All decimal points are omitted.
(*) $p < .05$. (**) $p < .01$.
M = Mexico
IR = Iran
K = Korea
F = Fiji
IN = India

Table 4. R^2 Increments According to the Addition of the Urban-Rural (UR) Component

Method	Comdom					Pill					Injection					Vasectomy				
Country	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN
UR	004	009*	031**	007*	001	001	000	002	004	020**	003	000	000	003	008*	001	013**	014**	003	000
$\Sigma B_i E_i$ x UR	000	000	000	003	003	000	000	000	005	000	000	001	000	000	009*	002	012**	018**	002	003
$\Sigma NB_i MC_i$ x UR	000	007	000	009*	012**	001	000	002	007*	010*	000	000	002	001	034**	001	000	006	005	002
ΣPNB_i x UR	006	001	003	019**	004	004	000	001	000	001	003	002	003	012**	000	005	000	000	003	003

M = Mixico
IR = Iran
K = Korea
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added in single steps, and the increment in R^2 at each step is taken as the component of variation attributable to the particular variable added on that step.

As seen in Table 3, the PNB component contributed significantly to the prediction of BI for 13 cells among 20 cells. The magnitude of contribution did not seem to be related to the methods since there was no consistent pattern in the relations of R^2 increments with the methods. However, there was a strong indication that the PNB component contributes to the prediction of BI more in some countries than in other countries. In the present analysis adding the PNB component to the model improved on the prediction of BI significantly for Mexico, Iran, and Fiji samples while for Korea and India samples it had a minimal effect. Examination of correlation coefficients of PNB with BI confirmed our observation. These correlations were much lower for Korea and India samples (average r=.135 for Korea and .182 for India) than they were for other samples (average r=.263 for Mexico; .465 for Iran; .521 for Fiji). It seems that for Korea and India samples a person's personal normative belief does not influence his behavioral intentions. However, since there exist variations in many demographic variables over the sample of different countries as seen in Table 1, it was not possible to identify the variables that were responsible for the differential contributions of the PNB component.

Demographic Variables in the Fishbein Model

As mentioned above, the Fishbein model dictates no direct influence of demographic variables upon the prediction of BI. To test this hypothesis, four demographic variables (urban-rural residence, education, age, occupation) were added to the equation. Also the interaction effects of the demographic variables with other components in the equation were tested. Hierarchical regression analysis was used. For example, data in Table 4 were obtained from the regression equation; $BI = \Sigma B_iE_i + \Sigma NB_iMC_i + \Sigma PNB_i + UR + \Sigma B_iE_i \cdot xUR + \Sigma NB_iMC_ixUR + \Sigma PNB_ixUR$ where each component was entered one by one in the given order. For the case of education (Table 5), the equation was:
$BI = \Sigma B_iE_i + \Sigma NB_iMC_i + \Sigma PNB_i + ED + \Sigma B_iE_ixED + \Sigma NB_iMC_ixED + \Sigma PNB_ixED$, etc.
Data for the first three components (ΣB_iE_i, ΣNB_iMC_i, ΣPNB_i) were not presented here because they were already presented in Table 2 and Table 3.

As seen in Table 4 through 7, demographic variables generally did not affect the prediction of BI very much in terms of either main effects or interaction effects. Only the age variable showed significant main effect for more than half of the cells. Other demographic variables showed significant main effects only 5-7 cells among 20 cells,

Table 5. R^2 Increments According to the Addition of the Education (ED) Component

Method	Condom					Pill					Injection					Vasectomy				
Country	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN
ED	003	000	011*	002	002	001	000	020**	000	000	003	000	007*	000	001	000	005	011*	001	012*
ΣB_iE_i x ED	000	002	011*	000	007*	000	001	003	002	000	002	000	000	000	009*	004	010*	002	000	001
ΣNB_iMC_i x ED	007	001	000	005	004	001	005	011*	000	000	000	001	002	000	001	001	001	001	001	001
ΣPNB_i x ED	005	005	001	005	001	000	001	001	000	002	001	000	000	000	007*	000	000	000	000	010*

M = Mexico IR = Iran K = Korea F = Fiji IN = India

Table 6. R^2 Increments According to the Addition of the Age (AGE) Component

Method	Condom					Pill					Injection					Vasectomy				
Country	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN
AGE	023**	009*	015**	001	037**	012**	020**	004	001	035**	013**	014**	006	002	041**	012**	003	018**	001	014**
ΣB_iE_i x AGE	000	007	004	002	001	000	002	002	002	007*	001	002	003	000	016**	006	003	000	009*	008*
ΣNB_iMC_i xAGE	007	000	001	004	014**	000	009*	001	000	003	012*	000	003	000	026**	002	000	000	001	021**
ΣPNB_i x AGE	003	002	023**	000	000	000	001	003	000	002	000	011*	009*	001	000	003	004	000	008*	000

M = Mexico IR = Iran K = Korea F = Fiji IN = India

Table 7. R^2 Increments According to the Addition of the Occupation (OP) Component

Method	Condom					Pill					Injection					Vasectomy				
Country	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN	M	IR	K	F	IN
OP	000	009*	004	002	002	000	002	010*	007*	011*	003	002	010*	000	022**	004	002	004	000	001
ΣB_iE_i x OP	000	001	010*	000	003	000	000	003	000	000	005	000	000	000	011*	001	004	002	000	004
ΣNB_iMC_i x OP	000	002	000	017**	007*	000	000	006	000	001	000	003	000	000	008*	003	002	002	000	005
ΣPNB_i x OP	002	003	002	014**	000	000	005	002	000	001	000	013**	000	001	002	000	004	000	000	007*

M = Mexico IR = Iran K = Korea F = Fiji IN = India

and even when significant, they usually accounted for less than 2% of the total variance. The four demographic variables seldom showed significant interaction effects. No consistent cross-cultural differences or cross-method differences were detected.

DISCUSSION

The primary purpose of the present study was to test the cross-cultural validity of the Fishbein behavioral intention model. In our study the model predicted the behavioral intentions concerning the use of various contraceptive methods fairly well. The two components (ΣB_iE_i and ΣNB_iMC_i) explained an average of 40% of the variance in intentions. This amount of accountability was far less than 60% which was obtained in the previous study with American married women sample (Davidson and Jaccard, 1975). However, it was still high enough to validate the model, and more importantly the model's validity was consistently shown for various cultures and for various contraceptive methods.

The relative size of the regression coefficients (also correlation coefficients with BI) of the two components (ΣB_iE_i and ΣNB_iMC_i) in the model did not seem to be related to the cultural differences or method differences. More specifically these components received comparable regression weights for most cases and these regression weights were all statistically significant. Therefore, the present study suggests that regardless of cultures, the Fishbein model predicts BI fairly well and both ΣB_iE_i and ΣNB_iMC_i are essential components in the model. In other words, the cross-cultural validity of the model was shown.

As for a personal normative belief component (PNB) the results were not consistent across different cultural samples. Adding a PNB component to the Fishbein model helped to improve the prediction of BI for Mexican, Iranian, and Fijian samples while it did not help for Korean and Indian samples. For the non-significant R^2 increments for Korean and Indian samples, two kinds of mechanisms are possible. One comes from the statistical fact that in hierarchical regression analysis, much of the variance which otherwise can be accounted for by a later-added component (ΣPNB_i here) can be partialed out by earlier-added components (ΣB_iE_i and ΣNB_iMC_i in this study). On the other hand, the R^2 increments can be non-significant mainly due to the poor correlations between the component concerned and the criterion variable. Since the correlations between BI and PNB were distinctively low for Korean and Indian samples compared to those for other

cultural samples, the latter seems more to be the case in the present study. That is, personal normative belief is not an important component of behavioral intentions for Korean and Indian samples. However, this finding did not guarantee the cultural specificity of the PNB component. Though in the present study there was very little cross-method variation in the accountability of the PNB component, it should be noticed that all four methods in our study dealt with only one type of behavior–the use of contraceptive methods. If some totally different behavioral intentions are predicted, the PNB component might significantly contribute for these cultures. Therefore, in future research it would be helpful to include several distinctive behavioral intentions in order to test the possibility of culture-behavior interaction effects in PNB contribution. Our tentative conclusion here is that the PNB component can not claim a universal status for its contribution to the model when added to the Fishbein model, though it significantly helps to improve the prediction of BI for some cultures.

The hypothesis that the effects of demographic variables can be sufficiently mediated through the attitudinal and normative components in the Fishbein model was generally supported in the present study with some reservation. For three demographic variables (urban-rural residence, education, and occupation), main effects were only occasionally significant and few interaction effects were significant. However, for the age variable a significant main effect was frequently found. It is impossible to determine if age is an important factor for the prediction of BI in general or if its significance is limited to only a particular type of BI (here the use of contraceptive methods) because we deal with only one type of behavior in this study. Also it is not certain whether the age effect is culture-specific since for the Fijian sample no significant age effect was found. To solve these problems, as we suggested earlier, the model should be tested for several distinctive behavioral intentions.

Several theoretical considerations should be mentioned in relation to the present study.

1. Cross-cultural Generality of Human Cognition.

The cross-cultural validation of the Fishbein model in the present study indicates that some basic human cognitions have universality. This does not mean that an emic attitude scale developed in one country can be directly used in other countries simply because it has been translated. As the Fishbein model dictates, the regression weights of the components are empirically determined from culture to culture, and therefore cross-cultural difference is assumed in the model. However, in the present study it was shown that

attitudinal and normative elements are necessary and fairly sufficient components of a person's behavioral intention regardless of specific culture to which he belongs. What it suggests is that there are some besic human cognitions which are stable across cultures, and that they give a certain degree of confidence to the efforts for developing cognitive models of human behavior because without assuming some degree of universality of human cognition cognitive models will have little meaning.

2. Behavior versus Behavioral Intention.

It should be mentioned that in the present study we examined the prediction of behavioral intention, not the prediction of actual behavior. Though Fishbein (Fishbein and Ajzen, 1975) suggested that BI is a strong predictor of actual behavior, it is not guaranteed that good prediction of BI always leads to good prediction of actual behavior. Probably there will be some intervening variables between BI and actual behavior. Therefore, it will be helpful to develop a behavior-predicting model which includes these variables and to test the model in the cross-cultural situation as we did in the present study with BI model.

3. Cross-cultural Study of Cognitive Model.

In the present study we showed that "cultural similarities" approach with "combined etic-emic" technique can overcome some of the difficulties of a cross-cultural study and enable us to interpret the results meaningfully. Considering that most cognitive models are developed for American subjects it will be helpful to perform cross-cultural testing on these cognitive models. Besides general testing of the cross-cultural validity of a given model, it will give valuable information about which elements in the model are culture-specific and which elements are cross-culturally general, the kind of information which will help the elaboration of the model.

4. Between-culture versus Within-culture Differences.

There might be speculations about what actually constitutes cross-cultural differences. So-called cultural differences simply might be differences resulting from differences in certain demographic characteristics existing between two cultural groups rather than true cultural differences. This hypothesis was not tested in the present analysis, and is hard to prove. However, one possibility will be to compare "between-culture" variance with "within-culture" variance. By "between-culture" variance it means the kind of variance among groups, which are heterogeneous in the sense that they are from different cul-

tures, but are homogeneous in the sense that they are equivalent in several important demographic characteristics. On the other hand, "within-culture" variance means the variance among groups which are culturally homogeneous but demographically heterogeneous. Our point is that if "within-culture" variance is bigger than "between-culture" variance in a given variable, it probably means that the obtained cross-cultural differences is more likely to be due to the demographic differences between cultures rather than due to some culture-specific traits, and vice versa. This kind of study might be helpful to put in perspective the perhaps exaggerated conception of cultural differences.

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〈要　約〉

相異한 文化圈에서의 Fishbein 行動意思 모델의 妥當性 檢證

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Fishbein 모델은 合理的 思考양식에 의존하는 認知的 태도 모델이라는 점에서 문화에 따라 타당성에 차이를 가져오리라는 예측을 가능케 한다. 그럼에도 불구하고 이 모델의 타당성은 미국을 제외한 다른 문화권에서는 연구된 사례가 희소하였다.

본 연구에서는 멕시코, 이란, 한국, 피지, 인도의 5개 문화권에서의 성인 남자 표집을 대상으로 4가지 종류의 避妊法의 사용에 대한 태도조사에 Fishbein 모델을 사용하여 그 타당성을 검사하였다.

결과는, Fishbein 모델의 二個 구성 성분(태도성분 및 규범성분)이 行動意思의 예언에 필요하고도 충분한 요소임이 모든 문화권 및 태도대상에 걸쳐서 일관성있게 나타났다. 이 모델에 Triandis의 개인규범 성분을 첨가한 결과는 문화권에 따라 일관성있는 改善을 보이지 않았으며 社會人口學的인 변인들은 일반적으로 微微한 정도의 관여만을 나타내었다.

이 연구결과는 Fishbein 모델이 상이한 문화권에서 타당성을 가짐을 보여주는 것으로 나아가서 認知樣式의 類似性 및 이에 근거한 認知모델의 상이한 문화권에서의 적용 등에 대한 긍정적인 示唆를 던져준다.