

RESEARCH ARTICLE

Predicting Intention Perform Breast Self-Examination: Application of the Theory of Reasoned Action

Triana Kesuma Dewi^{1*}, Rizqy Amelia Zein²

Abstract

Objective: The present study aimed to examine the applicability of the theory of reasoned action to explain intention to perform breast self-examination (BSE). **Methods:** A questionnaire was constructed to collect data. The hypothesis was tested in two steps. First, to assess the strength of the correlation among the constructs of theory of reasoned action (TRA), Pearson's product moment correlations were applied. Second, multivariate relationships among the constructs were examined by performing hierarchical multiple linear regression analysis. **Result:** The findings supported the TRA model, explaining 45.8% of the variance in the students' BSE intention, which was significantly correlated with attitude ($r = 0.609$, $p = 0.000$) and subjective norms ($r = 0.420$, $p = 0.000$). **Conclusion:** TRA could be a suitable model to predict BSE intentions. Participants who believed that doing BSE regularly is beneficial for early diagnosis of breast cancer and also believed that their significant referents think that doing BSE would significantly detect breast cancer earlier, were more likely to intend to perform BSE regularly. Therefore, the research findings supported the conclusion that promoting the importance of BSE at the community/social level would enhance individuals to perform BSE routinely.

Keywords: Breast cancer- breast self-examination- theory of reasoned action

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Introduction

Cancer is one of the most common causes of death in the world. The World Health Organization (WHO) recorded more than 7.6 million people died in 2005, and if no actions are taken, it is predicted that more than 84 million people will die in 2015 (WHO, 2015). In Indonesia, cancer is the seventh leading cause of death after stroke, tuberculosis, hypertension, injury, prenatal complication and diabetes mellitus, with prevalence 4.3 among 1,000 people (Departemen Kesehatan Republik Indonesia, 2008). This condition should need serious attention because it should be more than a half cases and death of cancer can be avoided (ACS, 2011).

Breast cancer is one of high prevalence type of cancer. Breast cancer usually marked by abnormal cells in the breast tissues. The breast contains several parts: lobules, ductus, fat and connective tissues, blood vessels and lymph. Breast cancer can be start from those parts, but mostly from the ductus cells (Wang and Heng, 2009). The International Agency for Research on Cancer (IARC, 2008) stated that breast cancer is the number one in incident number and in the second place as the most cause of death due to cancer around the world in 2008. There were 1.4 million new cases of breast cancer, which is accounted for 23% of all cancer incidents, around the world in 2008, in which half of them were diagnosed in

the developing countries (Jemal, et al., 2011). Data from GLOBOCAN (Ferlay, et al., 2015) indicated that breast cancer is the most prevalent cancer among Indonesian women population, accounted for 30.5% incidence rate from all of type of cancer, while there were estimated 21.5% death from cancer are caused by breast cancer.

The common problem for cancer treatment is that the patients usually come for a visit to a healthcare service provider in the very late stage of cancer, while the later stage of cancer is associated with the higher cost of treatment and worsen prognosis. Therefore, the program for early detection of breast cancer needs to be initiated. Early detection will not decrease the number of breast cancer case, but surely will improve the prognosis (McPherson et al., 2000). Early detection results in early diagnosis and early treatment, thus decreases the mortality level. The current research aimed to predict the intention of Breast-Self Examination (BSE) in the younger age by using the Theory of Reasoned Action (TRA) perspectives as the preliminary steps of breast cancer early detection intervention programs.

Theory of Reasoned Action

From the TRA point of view, a volitional behaviour is made of from one's behavioural intention to engage in the target behaviour. The TRA depicts the behaviour as a linear regression function of behavioural intention:

¹Department of Clinical Psychology and Mental Health, ²Department of Personality and Social Psychology, Faculty of Psychology, Universitas Airlangga, Surabaya, Indonesia. *For Correspondence: triana.dewi@psikologi.unair.ac.id

$$B = w.BI$$

Where B is behaviour, BI is behavioural intention and w is regression weight. The relation reflects the fact that a person will be likely to engage in behaviours they intended to perform. The theory is well predicting a volitional behaviour, thus poorly associated with behaviour requiring skills, resources or opportunities that are not freely available.

The TRA explained that the behavioural intention is predicted by two determinants: attitude and subjective norms. Thus, behavioural intention is a linear regression function of attitude and subjective norms:

$$BI = w1.A + w2.SN,$$

Where BI is behavioural intention, A is attitude toward behaviour, SN is subjective norms and w1, w2 are empirical weights indicating the relative importance of the determinants of intention (Conner and Spark, 2005).

Fishbein and Ajzen in Conner and Norman (2005) defined attitude as a learned character reflected on a way to respond a given situation in a consistently favourable or unfavourable manner. Thus, it consists a person's evaluations of behaviour. Attitude is a function of salient behavioural beliefs, which represent perceived consequences or other attributes of the behaviour.

According to expectancy-value conceptualizations (Peak, 1955), consequences are composed of the multiplicative combination of the perceived likelihood that performance of the behaviour leads to a particular outcome and the evaluation of that outcome. These expectancy-value products are then summed over the various salient consequences:

$$A = \sum_{i=1}^{i=p} b_i \cdot e_i,$$

Where A is attitude, bi is the behavioural belief that performing the behaviour leads to some consequence i (thus bi is the subjective probability that the behaviour has the consequence i), ei is the evaluation of consequence i, and p is the number of salient consequences over which these values are summed. The equation does not explain a process, but aimed at to capture an output of a process, which is occurred automatically as a function of learning. To be obvious, the model not assuming that a person will perform such calculation every time (s)he is faced with a decision to engage in a behaviour, but rather that the results of such considerations are maintained in memory and retrieved and used when necessary (Fishbein, 1993; Ajzen and Fishbein, 2000). According to summative model of attitude (Fishbein, 1967a; Fishbein, 1967b), a person may have a large number of beliefs about a particular behaviour, but only some of these are likely to be salient in a specific situation. These salient beliefs are assumed to determine one's attitude.

Subjective norms represent one's belief whether significant others think (s)he should engage in a behaviour. Thus, they are assumed to assess the social pressures to perform or not to perform a particular behaviour from significant referents. Subjective norms are function of normative beliefs in which specific significant referents think a person should perform or not to perform a behaviour multiply by the person's motivation to comply

the referents' expectations on an issue:

$$SN = \sum_{j=1}^{j=q} nb_j \cdot mc_j,$$

Where SN is subjective norms, nbj is normative belief that referent j thinks a person should perform the behaviour, mcj is motivation to comply with the referent j, q is the number of significant referents.

The TRA explains health behaviour of a person briefly. In the current research, the TRA would explain how university student population commit BSE routinely. A student who believes that BSE will make her comfort and this is something she value will have positive attitude toward BSE. When this student values the approval of parents to do BSE and believes that they will endorse her is creating positive subjective norm concerning BSE. Student with positive attitude and subjective norm toward BSE is predicted to be more likely to intend to do BSE routinely and ultimately do it. The model is presented schematically in Figure 1, with BSE as the target behaviour.

TRA is well-known behavioural model to predict the intention of healthy behaviours and numerous prior researches had explored various health outcomes by using TRA. Some of these studies supported that attitude and subjective norms predicted the intention of condom use (Krahe and Reiss, 1995; Serovich and Green, 1997; Bosompra, 2001).

Therefore, our main hypothesis (H1): the components of TRA: attitude and subjective norms are significant predictors of doing BSE in university students.

A study conducted by Cooke and French (2008) led to a conclusion that the effect of attitudes and subjective norm may vary in estimating intention to attend screening test, depending on the types of the screening test, screening cost, invitation to screening and recruitment location. When the outcome of the screening can impact largely on people other than those who being screened, such as genetic or prenatal screening, the relation between attitude and intention is significantly stronger. The same study also confirmed that the relation between attitude and intention is greater when participants were recruited in GP practices, in compare to hospital context. In addition, attitude predicts intention better when the screening is free and when participants are invited to attend the screening. All screening tests that were included in Cooke and French study were clinical diagnostic tests carried out by health professionals, where participants should visit healthcare facilities to perform the screening test.

Therefore, there is a little evidence available on how attitude and subjective norm can predict the intention of conducting breast self-examination screening, that participants can regularly perform without visiting health professionals. We hypothesized that attitude might predict intention to perform BSE regularly better than subjective norms. We inspired by Cooke and French (2008) study, which led to a conclusion that in invited screening context, attitude performs better in predicting intention, because individuals feel more informed about screening procedure before performing the test, so that they have more stable attitude. Consequently, in this research the effect of attitude might be larger than subjective norms

as conducting BSE requires proper knowledge and skills, which participants should be mastered beforehand.

Materials and Methods

Measures

A 34-questions TRA questionnaire was constructed to measure the TRA variables. Age and socioeconomic status (parents' monthly income) were also asked. Behavioural beliefs were measured on a 7-point scale scored from 1, represented "strongly disagree" to 7, represented "strongly agree". Outcome evaluation was assessed on 7-point scale ranging from "very bad" (1) to "very good" (7). Normative beliefs were measured on a 7-point scale ranging from "strongly disagree" (1) to "strongly disagree" (7). Motivations to comply were measured on a 7-point scale ranging from "not at all" (1) to "very much" (7).

The scale had very good internal consistency reliability with Cronbach's alpha coefficients .939 and item-total correlation ranging from .317 to .664. Intention scale consisted of 2 questions, with Cronbach's alpha coefficients .865. Attitude scale consisted of 12 questions, with Cronbach's alpha coefficients .916 and item-total correlation ranging from .469 to .760. Subjective norm scale consisted of 20 questions, Cronbach's alpha coefficients was .934, with item-total correlation ranging from .448 to .765.

Procedures

The data collection was divided into 2 steps. As recommended by Fishbein and Ajzen in Conner and Norman (2005), the researcher needed to conduct a preliminary survey to identify the specific determinants of BSE in the population. The step was crucial to formulate the determinants of attitude and subjective norms associated with BSE. We invited 38 female students to join the preliminary survey, randomly assigned to questionnaires and FGD group. The participants were third and fourth-years students of Faculty of Psychology, Universitas Airlangga that was recruited from Health Psychology class. Participant's age range from 18 to 21 and had the experience of doing BSE at least once.

Thirty participants joined the preliminary survey, which aimed to gain information for outcome and referral variables through open-ended questionnaires. The questions for outcome variable are:

- (a) What do you see as the advantages of doing BSE regularly?
- (b) What do you see as the disadvantages of doing BSE regularly?
- (c) Is there anything else you associated with doing BSE regularly?

The questions relating to referral variable are:

- (a) When it comes the time for you to do BSE routinely, are there any persons or groups whose approval you care a lot about?
- (b) When it comes the time for you to do BSE routinely, are there any persons or groups whose disapproval you care a lot about?
- (c) Are there any other persons or groups you associate with your engagement to do BSE routinely?

Eight female university students were also involved in a focused group discussion regarding the preliminary survey. The response from the preliminary survey with questionnaire as well as FGD were grouped based on the theme similarities and named with summary phrase to represent the group. The salient outcomes from BSE based on preliminary survey were: "feel comfort", "aware whether there is a bump in my breast", "know whether my breasts are normal or not", "know earlier when there is something wrong with my breast", "know my own breast condition" and "know the recent condition of my own breast". The salient referrals were: "parents", "mother", "medical doctor", "nurse", "friends", "best friends", "grandmother", "aunt", "lecturer" and "teacher".

In the time of study, there were 1021 undergraduate students registered in the Faculty of Psychology, Airlangga University with 749 female students as the population. The probability sampling was employed, and the sample size was calculated using the Slovin formula:

$$n = N / N.d^2 + 1$$

where "n" was the sample size, "N" was the population size and "d" was estimation error, in which set at 95%. Thus, the sample size of 749-population size with confidence interval of 95% was $749 / 749. (5\%)^2 + 1 = 260.74848 = 261$. 265 female students were randomly selected from students' list name.

Eight trained research assistants were contacting the subjects by email, short message service, telephone and face-to-face invitations. The research assistants provided each participant with the questionnaires and an envelope. They explained how to fill out the questionnaires (approximately 20-30 minutes to fill in). The participants were ensured the confidentiality of the data written in the questionnaire and given privacy of completing the questionnaire in a preferable room. After completion of the questionnaire, the participants returned it to the research assistants by enclosed it in the envelope and sealed it. Ten students were not willing to participate in the study, 7 questionnaires were not properly filled out by the participants, and thus only 248 questionnaires were included in the study.

Participants

Two hundred and forty-eight undergraduate students of Faculty of Psychology, Universitas Airlangga participants joined the study. Participants' average age is 20.76, and 118 participants age 17 -20 (47.58%), 124 participants age 21-24 (50%) and 6 participants ages 25 – 28 (2.42). In regards to participants' socioeconomic status, 40 participants (16.13%) had parents with monthly income below Rp2.000.000, 28 participants (51.61%) had parents with monthly income Rp2,000,000–5,000,000 and 80 participants (32.26%) had parents with monthly income above Rp5,000,000.

Data analysis

To test whether attitude, subjective norm and intention mean from each demographic criteria differs significantly, one-way ANOVA and LSD post hoc test were used. The hypothesis was tested in two steps. First, to assess the strength of the correlation among the construct of

TRA, Pearson’s product moment correlation was used. Secondly, the multivariate relationships among the constructs were examined by performing hierarchical multiple linear regression including intention as a dependent variable, as well as attitude and subjective norms as independent variables. SPSS 20 was used for data entry and data analysis.

Results

Descriptive data of participants’ attitude, subjective norm and intention to perform BSE are described in table 1. It was found differences on attitude across age groups. Participants age 17 to 20 had lower attitude score compare to age 21 – 24 group ($p = 0.009$), and age 21 – 24 group had higher attitude score compare to age 25 – 28 ($p = 0.029$). We also found that students with lowest social economic status (pareny’s monthly income below Rp 2,000,000.00) had lower positive attitude compare to those with parent’s monthly income above Rp 5,000,000.00 ($p = 0.043$).

Descriptive statistics of TRA constructs are described in table 2. Generally the behavioural beliefs of the participants about the advantages of doing BSE routinely were fairly high. The data indicated the mean of each items of behavioural beliefs ranging from 5.09 to 5.79. It implies that the participants believed that doing BSE routinely lead to some advantages, for example make them feel comfortable (B1) or aware whether there is a bump on their breast (B2).

Overall, the participants indicated that they showed a fairly good level of behavioural beliefs, based on their average score that ranged 5.65 to 5.73. It represents participants’ value, for example knowing whether their breasts are normal or not as something that are good (E3).

In general, the respondents perceived that their mother ($X = 4.48$), medical doctor ($X = 4.24$), best friend ($X = 4.18$), nurse ($X = 4.06$), and parents ($X = 4.00$), would consider doing BSE routinely are something important to do. However, the perception decreased on aunt ($X = 3.91$), friends ($X = 3.85$), lecturer ($X = 3.80$), grandmother ($X = 3.72$) and teacher ($X = 3.70$).

Generally, the motivation to comply with the referents was high with a mean range from 4.40 – 5.59.

According to data presented in table 3, attitude and subjective norms correlated significantly with intention. The correlation between attitude and intention indicated

that if the students believe that there were advantages to do BSE routinely, their intention to do BSE is higher. Similarly, the correlation between subjective norms and intention showed that when students perceived that their salient referents think she has to do BSE routinely and perceived that it is important to comply, their intention to do BSE tend to be higher.

To test the hypothesis, a hierarchical multiple regression was used. The demographic variables were considered to be controlled and were entered in the first step of the regression analysis. Two dummy variables were representing age (17-20 vs 21-24 vs 25-28), and 2 dummy variables were representing parent’s monthly income (below Rp. 2,000,000 vs Rp 2,000,000-5,000,000 vs above rp 5,000,000). The TRA components were added to the second block. There was a significant ($F(6,241) = 433.875, p = 0.000$) model of regression when regressing the intention on TRA attitude and subjective norm. The standardized coefficient of attitude was higher than subjective norms, indicated that attitude contributed more compared with subjective norm in explaining the variance in participants’ intention of doing BSE. The inclusion of age in the regression also significantly predicted the intention ($B = 0.102, p = 0.037$). The construct of attitude and subjective norms together with age explained 45.8% variance of intention to do BSE routinely ($R^2 = 0.458, p < 0.001$). The results of hierarchical regression predicting intention show in Table 4.

Discussion

The aim of this research was to confirm whether

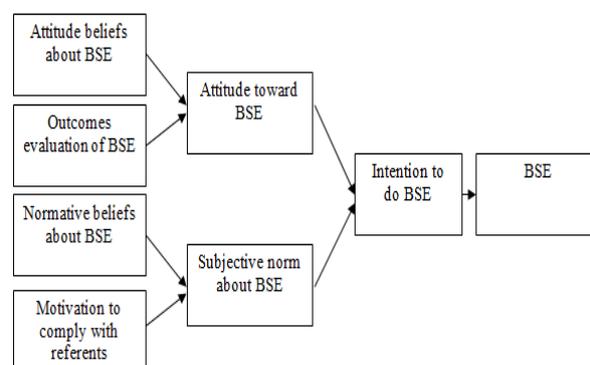


Figure 1. Determinants of BSE Adopted from Theory of Reasoned Action

Table 1. Participants’ Characteristics

	Attitude			Subjective Norms			Intention		
	M	SD	Range	M	SD	Range	M	SD	Range
Age									
17 – 20	187.53	53.97	260	207	100.63	474	9.97	2.77	12
21 – 24	204.28	52.87	260	203.58	91.51	470	10.57	2.77	12
25 – 28	187.53	53.97	260	207	100.63	474	9.97	2.77	12
Parents’ monthly income									
Below Rp. 2.000.000	181.77	66.68	260	195.3	113.6	474	10.07	3.07	12
Rp. 2.000.000 – 5.000.000	195.43	54.1	246	201.97	90.1	443	10.35	2.47	10
Above Rp 5.000.000	201.6	48	202	206.66	93.33	438	10.41	2.95	12

attitude and subjective norms could be significant predictors to measure participants' intentions of doing BSE regularly. By asking 248 students as research participants, our research findings confirmed that attitude

and subjective norms were key predictors to forecast students' intentions of doing BSE as explained by TRA model. It also means that students who believed that doing BSE regularly is beneficial to detect breast cancer earlier

Table 2. Descriptive Statistics of Theory of Reasoned Action constructs

Construct		Range	Mean	SD	
Attitude	Behavioural beliefs: Doing BSE routinely once a month makes me ...	32	33.76	6.17	
	B1: feel comfortable	6	5.09	1.41	
	B2: aware whether there is a bump in my breast	6	5.61	1.33	
	B3: know whether my breasts are normal or not	5	5.74	1.21	
	B4: know earlier when there is something wrong with my breast	6	5.78	1.16	
	B5: know my own breast condition	5	5.77	1.14	
	B6: know the recent conditions of my breast	5	5.79	1.16	
	Outcome Evaluations: To what extent is it good or bad to ...	26	34.07	5.27	
	E1: feel comfort	5	5.73	1.06	
	E2: aware whether there is a bump in my breast	5	5.65	1.1	
	E3: know whether my breast are normal or not	5	5.72	1.07	
	E4: know earlier when there is something wrong with my breast	5	5.67	1.09	
	E5: know my own breast condition	5	5.69	1.11	
	E6: know the recent conditions of my breast	5	5.63	1.15	
	Attitude: cross-product of behavioural beliefs and outcome evaluations				
	B1 x E1	45	29.65	10.73	
	B2 x E2	45	32.28	11.18	
	B3 x E3	45	33.4	10.62	
	B4 x E4	45	33.43	10.67	
	B5 x E5	49	33.28	10.69	
	B6 x E6	45	33.25	10.93	
$\sum (B_i \times E_i)$	260	195.21	54.7		
Subjective Norms	Normative beliefs: My ... thinks I should do BSE routinely once a month	60	39.92	13.65	
	N1: parents	6	4	1.75	
	N2: mother	6	4.48	1.77	
	N3: medical doctor	6	4.24	1.7	
	N4: nurse	6	4.06	1.57	
	N5: friends	6	3.85	1.58	
	N6: best friends	6	4.18	1.67	
	N7: grand mother	6	3.72	1.79	
	N8: aunt	6	3.91	1.75	
	N9: lecturer	6	3.8	1.7	
	N10: teacher	6	3.7	1.66	
	Motivation to comply: how much do you want to do what your ... think(s) you should do	54	48.2	9.47	
	M1: parents	6	5.46	1.21	
	M2: mother	6	5.59	1.18	
	M3: medical doctor	6	5.07	1.32	
	M4: nurse	6	4.69	1.33	
	M5: friends	6	4.55	1.19	
	M6: best friends	6	4.82	1.26	
	M7: grand mother	6	4.6	1.51	
	M8: aunt	6	4.52	1.36	
	M9: lecturer	6	4.49	1.4	
M10: teacher	6	4.4	1.41		

Table 2. Continued

Construct		Range	Mean	SD	
Subjective Norms	Motivation to comply: how much do you want to do what your ... think(s) you should do	54	48.2	9.47	
	M1: parents	6	5.46	1.21	
	M2: mother	6	5.59	1.18	
	M3: medical doctor	6	5.07	1.32	
	M4: nurse	6	4.69	1.33	
	M5: friends	6	4.55	1.19	
	M6: best friends	6	4.82	1.26	
	M7: grand mother	6	4.6	1.51	
	M8: aunt	6	4.52	1.36	
	M9: lecturer	6	4.49	1.4	
	M10: teacher	6	4.4	1.41	
	Subjective Norms: cross-product of normative beliefs and motivation to comply				
	N1 x M1	48	22.58	12.3	
	N2 x M2	48	25.88	13	
	N3 x M3	48	22.51	12.64	
	N4 x M4	48	20.01	11.31	
	N5 x M5	49	18.38	10.75	
	N6 x M6	48	21.38	11.98	
	N7 x M7	48	18.31	12.51	
	N8 x M8	48	18.96	12.16	
N9 x M9	48	18.42	11.87		
N10 x M10	48	17.46	11.54		
$\sum (Nj \times Mj)$	474	203.83	95.61		
Intention	I1: I Intended to do BSE routinely once a month	6	5.22	1.43	
	I2: I will do BSE routinely once a month	6	5.07	1.47	
	$\sum I$	12	10.29	2.72	

Table 3. Correlation of TRA Constructs

	Behavioural Belief	Outcome Evaluation	Attitude	Normative Beliefs	Motivation to Comply	Subjective Norms
Intention						
Pearson's Correlation	0.648	0.427	0.609	0.353	0.37	0.42
Sig. (2-tailed)	0	0	0	0	0	0

Table 4. Hierarchical Multiple Regression Predicting Intention

Predictor	R ²	DR ²	B	b	Significance
Attitude	0.458	0.444	0.028	0.553	0.000*
Subjective Norm			0.007	0.235	0.000*
Age					
(17 – 20 vs remainder)			Reference	-	-
(21 – 24 vs remainder)			0.114	0.133	0.392
(25 – 28 vs remainder)			0.599	0.102	0.037*
Parent's monthly income					
(< Rp. 2.000.000 vs remainder)			0.261	0.035	0.483
(Rp. 2.000.000 – 5.000.000 vs remainder)			Reference	-	-
(> Rp 5.000.000 vs remainder)			-0.063	-0.033	0.514

* Significance p < 0.05

and also believed that their significant referents think that doing BSE would significantly detect breast cancer earlier, were more likely to intend to do BSE regularly. Similar result was found in Cooke and French's (2008) research, which concludes that subjective norms and attitude had satisfyingly predicted participants' intentions of attending breast-screening program. The research also indicated that attitude predict intention better than subjective norm. The finding is aligned with Cooke and French (2008) report. By conducting meta-analysis of numerous research reports, Cooke and French (2008) supports the findings that attitude has a strong relationship with intentions and appears to be the best predictor to estimate the attendance to breast screening program, while subjective norm hold less-strong relationship with intentions. Despite investigating different health behaviour, another research conducted by Bosompra¹⁹ also shows that subjective norms and attitude are also crucial factors to predict students' intentions of using condom in regards to preventing AIDS infections.

We documented that addition of demographic variable of age, together with TRA components in the equation improved the prediction of intention to do BSE. This was surprising since the TRA indicated that demographic characteristics should affect the intention indirectly through their direct effects on model components such as attitude and subjective norms. This suggests either measurement error in our model components or that our model is missing some other construct. However this finding was in-agreement with Montano and Taplin (1991), which indicated that demographic characteristics of age, marital status, and education entered in the model improved the prediction of intention of mammography participation.

A large body of work had supported a conclusion that individual's intention to act is the most important and direct predictor of health outcomes (Webb and Sheeran, 2006). Given that intentions holds a focal point in the whole model of health behaviour, a further question arises accordingly; how good is intentions in predicting the occurrence of behaviour? Conner and Spark (2005) argued that the relationship between intentions and the actual behaviour is spurious and less-clear, while Sheeran, et al., (2005), by conducting a series of meta-analyses, had shown that intentions is indeed a robust predictor of behaviour, but it is rather inadequate to explain behavioural change.

Furthermore, whether intention is able to predict behavioural change is still intensely debatable, especially when explaining volitional behaviour (Conner and Spark, 2005; Webb and Sheeran, 2006). Thus future research is suggested to improve current research findings by taking skills or resources needed to perform BSE into account, so the model can provide better explanation of whether people perform BSE or not. Taking perceived behavioural control (PBC) as one of predictors and improving TRA into Theory of Planned Behaviour (TPB) accordingly as suggested by Conner and Spark⁹, can lead to a more satisfying picture that explains why people do or do not do BSE routinely. PBC is rather focal in explaining BSE as a health outcome, because performing BSE routinely

demands knowledge, skills and/or opportunity and these factors can be accommodated by conceptualizing those as perceived behavioural control (PBC). Even though Conner and Spark (2005) suggested that there might be a particular condition when attitude are very strong, or subjective norms are rather powerful, PBC may less likely to be a strong predictor of behaviours or behaviour change. However, in this research, attitude was only moderately correlated to intentions and the relationship between subjective norms and intentions was even less strong, so measuring PBC will be likely to improve the model significantly.

Research findings expand the understanding of attitude surrounding intention to do BSE vary with several demographic factors such as age and parent's monthly income. The attitude substantially differed across age groups. It was also revealed that participants aged 17-20 were less likely to believe that doing BSE regularly would benefit them and participants aged 21-24 were more likely to hold stronger positive attitude towards performing BSE regularly than participants from older age group. Future research has an opportunity to further investigate participants' knowledge and awareness as research undertaken by Sheeran et al., (2005) shows the evidence that younger women are less likely to be aware of breast cancer risk, while older women tend to be less knowledgeable about breast cancer risk. In the context of this research, it would not be safe to conclude that the attitude difference across age groups occurred, solely because younger participants had less awareness and older participants had less knowledge. However, as past research confirmed that knowledge and awareness of breast cancer risk were vary across age groups (Pacey et al., 2006), it would be very interesting to further investigate, how knowledge and awareness can affect the attitude variance between age groups. The result also confirmed that there were some slight difference in attitude among parent's monthly income group. Participants who had parents with monthly income below Rp 2,000,000 had lower positive attitude compare to those with parent's monthly income above Rp 5,000,000. The research finding highlighted that positive attitude was associated with higher parent's monthly income. It was aligned with Dandash and Al-Mohaimed (2007) findings, which confirmed that socioeconomic together with experiences might have impact on acquiring knowledge thus associated with knowledge level. However, further investigation in this field is promising.

References

- Ajzen I, Fishbein M (2000). Attitudes and the attitude-behaviour relation: reasoned and automatic process. *Eur Rev Soc Psychol*, **11**, 1 - 33.
- Bosompra K (2001). Determinants of condom use intentions of university students in Ghana: an application of the theory of reasoned action. *Soc Sci Med*, **52**, 1057-69.
- Cooke R, French DP (2008). How well do the theory of reasoned action and theory of planned behaviour predict intentions and attendance at screening programmes? A meta-analysis. *Psychol Health*, **23**, 745-65.
- Conner M, Spark P (2005). Theory of planned behaviour and *Asian Pacific Journal of Cancer Prevention*, Vol 18 **2951**

- health behaviour. In M. conner, P. Norman (Eds.), *Predicting Health Behaviour: Research and Practice with Social Cognition Models*. 2nd Edition. Glasgow: Open University Press, pp 170 - 222.
- Dandash KF, Al-Mohaimeed A (2007). Knowledge, attitudes, and practices srrounding breast cancer and screening in female teachers of Buraidah, Saudi Arabia. *Int J Health Sci*, **1**, 61 – 71.
- Departemen Kesehatan Republik Indonesia (2008). Riset Kesehatan Dasar (Riskesdas) 2007 [Research of Basic Health 2007]. Jakarta: Dinkes printing office.
- Ferlay J, Soerjomataram I, Ervik M, et al (2015). Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer*, **136**, 359-86.
- Fishbein M (1967a). Attitude and the prediction of behaviour. In M. Fishbein (Ed.), *Readings in Attitude Theory and Measurement*. New York: Wiley, pp 477-92.
- Fishbein M (1967b). A behavior theory approach to the relations between beliefs about an object and the attitude toward the object. In M. Fishbein (ed.) *Readings in attitude theory and measurement*. New York: Wiley, pp 389–400.
- Fishbein M (1993). Introduction. In T. C. Gallois, M. McCamish (Eds.), *The theory of reasoned action: Its application to AIDS-preventive behaviour* (pp. xv–xxv). Oxford: Pergamon. xv-xxv.
- International Agency for Research on Cancer. (2008). Global statistic cancer 2008: Breast cancer incidence and mortality worldwide in 2008 Summary. Retrieved from globocan.iarc.fr/factsheets/cancers/breast.asp.
- Krahe B, Reiss C (1995). Predicting intentions of AIDS-preventive behaviour among adolescents. *J Appl Soc Psychol*, **25**, 2118-40.
- Manoppo S (2011, 10 17). Kanker Payudara, Pembunuh Nomor Dua. Surabaya, Jawa Timur, Indonesia.
- McPherson K, Steel CM, Dixon JM (2000). ABC of breast disease: Breast cancer-epidemiology, risk factors, and genetics. *BMJ*, **321**, 624-8.
- Montano DE, Taplin SH (1991). A test of an expanded theory of reasoned action to predict mammography participations. *Soc Sci Med*, **32**, 733 – 41.
- Peacey V, Steptoe A, Davidsdottir S, et al (2006). Low levels of breast cancer risk awareness in young women: An international survey. *Eur J Cancer*, **42**, 2585-89.
- Peak H (1955). Attitude and motivation. In M.R. Jones (ed) *Nebraska Symposium on Motivation*, Vol. 3, Lincoln: University of Nebraska Press, pp 149–88.
- Serovich JM, Greene K (1997). Predictors of adolescent sexual risk taking behaviours which put them at risk for contracting HIV. *J Youth Adolescence*, **26**, 429-44.
- Sheeran P, Milne S, Webb TL, Gollwitzer PM (2005). Implementation intentions and health behaviour. *Bibliothek der Universität Konstanz*, pp 276-323.
- Wang D, Shi L, Heng PA (2009). Automatic detection of breast cancer in mammograms using support vector machines. *Neurocomputing*, **72**, 3296-302.
- Webb TL, Sheeran P (2006). Does vhanging behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychol Bull*, **132**, 249-68.
- WHO (2006). World cancer day: Global action to avert 8 million cancer-related deaths by 2015. Geneva, Switzerland. Retrieved from <http://www.who.int/mediacentre/news/releases/2006/pr06/en/index.html>.