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Impact of Pharmaceutical Product Dynamics on Social Norms and Values: An Empirical Study from Bangkok-Thailand

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ABSTRACT
This study has examined the relationship between the dynamics of pharmaceutical products and social norms and values in the region of Thailand. The data was collected through questionnaire with a sample respondents of 226. For the analysis purpose, descriptive, frequency distribution, and regression techniques were applied on the collected dataset. Demographic factors cover the gender, age, educational background, and income level. Meanwhile, pharmaceutical dynamics are covered through ten factors ranging from A to J as explained under variable portion. For dependent variables, three factors like normative belief, social norms and attitude were observed. Findings of the study show that from the dynamics of pharma products, significant influence on normative belief, social norms and attitudes was found. In terms of implication, this study is highly suggested to the pharmaceutical managers, key decision makers and other officials who are dealing with the social influence of the pharma products, specifically in Thailand. However, our study is limited in terms of regional implications, sample size, and application of advanced techniques like structural equation modelling. Future studies are highly recommended to cover these limitations for more understanding and better implications.
Keywords: Pharmaceutical products, social norms, attitude, Thailand.
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INTRODUCTION: SOCIAL NORMS AND BUSINESS LIFE

During the last decade, due to a two-fold style as explained by (Festre, 2010), social norm theory has acquired momentum attention. It is believed that social norms affect economic behavior and similar is discussed since the time of Adam Smith (Ashraf, Camerer, & Loewenstein, 2005; Robson, 2001; Sen, 1997). Initially, significant proof have provided by the experimental economists that in economic decision making people show social preferences, hence differing from the material self-interest hypothesis (Falkinger, Fehr, Gächter, & Winter-Ember, 2000; Fehr & Gachter, 2000; Fehr & Gächter, 2000). Secondly, these deviations have a basic effect on main economic matters which is known by strong indication. Therefore, many different studies have described the social norms impact investment decisions as well as other economic and financial dynamics. During the previous twenty years, socially responsible investment (SRI) has obtained got momentum attention and socially responsible funds achieved about $3 trillion in assets from a total of $25 trillion (Nofsinger & Varma, 2014; Renneboog, Ter Horst, & Zhang, 2008). The promotion of companies sound in ethical and moral values is the stated objective of SRI funds and discernment against the companies that encourage vice, like those companies involved in the firearms, alcohol, nuclear power, gambling, military and tobacco industries (Sakuma & Louche, 2008).

In accounting and financial decisions, social norms can play their role and although such investigation has been reflected vital (Hopwood, 1983). Social norms minimize the financial reporting irregularities that are showed evidence by (McGuire, Omer, & Sharp, 2012). Authors like Dyreng, Mayew, and Williams (2012) have also discussed the factor of social norms while describing that with the financial reporting aggressiveness and tax avoidance, the social rules stemming from religious adherence. Meanwhile, capital market participants' reaction to stated good news on earnings indicates the social reaction in a society. From superior financial reporting quality "sin" companies benefit – in terms of predictability of earnings for timely loss recognition and future cash flows - as a reaction to higher litigation risk, governing analysis and as a strategy to attract investors (Kim & Venkatachalam, 2011).

Meanwhile, instead of bearing a larger financial cost in order to comply with societal norms, investors select to neglect "sin" stocks. Lastly, social norms have also shown different type of impact on the business and society too (Hong & Kacperczyk, 2009). Particularly, they discover that local audit offices that imitate to stronger religious social rules tend to be linked with more traditional going concern decisions.

Over the previous twenty years, there is a global discussion over pharmaceutical products in the market. Pharmaceutical and related products is an embryonic issue that has not been increasingly debated in the public area, and most individuals might not be aware of the problem. Risk awareness is a supreme variable for understanding individual removal of unused pharmaceutical products from the market (Fatokun, Ibrahim, & Hassali, 2011). Particularly, risk perception narrates to trust in risk regulations and whether it might impact the proper removal through purpose.

It was first stated in the 1970s, the occurrence of pharmaceutical residues has been a problem in environment (Bu et al., 2016; Daughton, 2016). A large amount pharmaceutical products and related equipment are produced and utilized and their production and consumption is estimated to be enlarged with the rise of life expectancy (Kaur, 2017). Various studies have addressed different dynamics and attributes of the pharmaceutical products. For example, it is believed that in Europe, almost more than 40,000active pharmaceutical compounds are

working which are further dealing with human and veterinary drugs. In addition, stability of the pharmaceutical products is of core concern for the various stakeholders which involves time and cost as well. commercial and scientific success of pharmaceutical products heavily depend upon the various characteristics and dynamics as reflected by the particular product or equipment, developed by such companies. Meanwhile, significant contribution by the research studies have also been explored covering the various dynamics (Bajaj, Singla, & Sakhuja, 2012; LaHann, 1986; Ledley, 1995). Our study has stated the following research objectives.

1. To examine the influence of pharmaceutical product dynamics on normative beliefs among the community members of Thailand
2. To examine the influence of pharmaceutical product dynamics on social norms among the community members of Thailand
3. To examine the influence of pharmaceutical product dynamics on attitude of community members of Thailand
4. To understand the demographic characteristics of the targeted respondents.

The rest of the paper is developed through 3-4 sections. Section 2 provides a good understanding about the variables their reflection and measurement in the questionnaire. Section 3 indicates the research methodology. Section 4 shows the results and related discussion. Section 5 covers the conclusion and future direction through some limitations.

DESCRIPTION ABOUT THE VARIABLES

TABLE 1: Provides the information for the variables, their nature and measurement on the questionnaire

Sr. No.	Variable Name	Nature	Reflection	Measurement
1	Gender	Demographic	Describe your gender	1=Male, 2=female
2	Age	Demographic	Describe your age level	20-25 years, 26-30 years, 31-35 years, above 35 years
3	Marital Status	Demographic	Describe your marital status	Single, Married, other
4	Income Level	Demographic	What is your current income level	Low, middle, high
5	Educational background	Demographic	What is your educational background	Intermediate, graduation, master, other
6	Pharmaceutical Product Dynamics	Independent Variable	A: All pharma products are licensed by the relevant National Drug Regulatory	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
7	Pharmaceutical Product Dynamics	Independent Variable	B: Product registered and currently marketed	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
8	Pharmaceutical Product Dynamics	Independent Variable	C: Product registered for export only	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
9	Pharmaceutical Product Dynamics	Independent Variable	D: The manufacturing method for each standard batch size has been validated?,	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
10	Pharmaceutical Product Dynamics	Independent Variable	E: Stability testing data available	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
11	Pharmaceutical Product Dynamics	Independent Variable	F: Satisfactory accelerated testing	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
12	Pharmaceutical Product Dynamics	Independent Variable	G: Label and insert information	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
13	Pharmaceutical Product Dynamics	Independent Variable	H: Label language	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
14	Pharmaceutical Product Dynamics	Independent Variable	I:Active Pharmaceutical Ingredients(s) (APIs)	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
15	Pharmaceutical Product Dynamics	Independent Variable	J: Commitment from the manufacturer	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
16	Normative Believe	Dependent Variable	NB1: acceptance from the society about specific belief	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4=

				agree, 5= strongly agree7
17	Normative Believe	Dependent Variable	NB2: normative beliefs are always welcome by the society	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
18	Social Norms	Dependent Variable	SN1: behavior supported by groups	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
18	Social Norms	Dependent Variable	SN2: normative values are shared understandings of actions	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
18	Social Norms	Dependent Variable	SN3: social norms should be understood as types of social interaction behaviors	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
19	Attitude	Dependent Variable	AT1:attidues social tools to evaluate overall social trend	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
20	Attitude	Dependent variable	AT2: positive attitude is a good indication towards the society	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7
21	Attitude	Dependent variable	AT3: positive attitude contributes towards individual and collective development	1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree7

RESEARCH METHODOLOGY

Present research study has adopted a questionnaire technique which is under the title of primary data analysis. The reason is that primary data technique like questionnaire is very helpful to analyze the social norms values and individual behaviour towards a specific product or a company. As the purpose of our study is to investigate the impact of pharmaceutical product dynamics on the social norms, values and attitudes in Thailand, questionnaire was found to be very much effective tool for the data collection. The developed questionnaire consists of ten items for the pharmaceutical product dynamics, three for the social norms, two for the normative behavior, and three for the attitude. All these items are clearly explained in the variable section of our study. Over a time of 5 weeks, data was collected from a sample of 226 respondents in the local community of Thailand covering the demographic details like age, gender, marital status, income level, and educational background as well. Our data set has provided the fact that there is no problem for the missing observations. Additionally, the respondents were instructed to provide their view against five point likert scale which indicates 1=strongly disagree, 2=disagree, 3=neither agree neither disagree, 4= agree, 5= strongly agree. The collected data was then observed for the following methods of analysis

Descriptive Technique: It has helped to cover the measure of central tendency and dispersion too.

Cross Tabulation and Frequency Distribution: It has helped to analyze the demographic characteristics of the respondents through cross tabulation and their relative frequency distribution and percentage score

Regression Analysis: This technique is very much effective to observe the individual influence of pharmaceutical product dynamics (A-J) on mean score of normative behavior, mean value of social norms, and mean value of attitudes of the people in the society.

RESULTS OF THE STUDY

Our study results are provided in the below detail along with the tables and discussion accordingly.

TABLE 1: Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
A	226	3.077	1.344	1	5
B	226	3.968	1.479	1	5
C	226	3.918	1.469	1	5
D	226	3.109	1.423	1	5
E	226	2.936	1.479	1	5
F	226	3.059	1.405	1	5
G	226	2.982	1.378	1	5
H	226	3.064	1.347	1	5
I	226	2.882	1.403	1	5
J	226	3.032	1.469	1	5
nb1	226	3.964	1.449	1	5
nb2	226	3.055	1.426	1	5

sn1	226	2.936	1.435	1	5
sn2	226	3.909	1.402	1	5
sn3	226	2.936	1.357	1	5
at1	226	3.995	1.37	1	5
at2	226	2.955	1.397	1	5
at3	226	3.095	1.425	1	5

Foot Note: A: licensed by the relevant National Drug Regulatory, B: Product registered and currently marketed, C: Product registered for export only, D: The manufacturing method for each standard batch size has been validated?, E: Stability testing data available, F: Satisfactory accelerated testing, G: Label and insert information, H: Label language, I: Active Pharmaceutical Ingredients(s) (APIs), J: Commitment from the manufacturer. NB1: normative believe 1, NB2: normative believe 2, SN1: social norms 1, SN2: social norms2, SN3: social norms 3, AT1: attitude 1, AT2: attitude 2, AT3: attitude 3.

Our study has provided descriptive results initially were all the items of the questionnaire, covering the perspective of general perception about the pharmaceutical products based on their characteristics and social norms, values, and attitudes are providing the mean and standard deviation. These results are shown in Table 2 of this research. Our study contains total sample size of 220 respondents from different areas of local market in Thailand who belongs to different age, genders, marital status, annual income, and education level. The descriptive results of our study has provided an idea that from the likert scale, an average trend of above 3 is recorded in majority of the items, which shows a closer response to the "agree". However, some responses are below 3 which indicates a moderate level of responses under our research. For the standard deviation, our results have shown the evidence for the value of between 1 and 1.50 indicating not a higher level of deviation in the recorded in the observed responses. Both minimum and maximum level of the values under Table 2 has shown the lowest and highest trends which are observed under the data set.

Table 3 has shown the frequency distribution for the gender which indicates overall 125 male and 101 females were targeted for the collection of data. Both of these genders are reflecting a percentage score of 55.3 percent and 44.7 percent in the Table. For the marital status, overall three categories are divided indicating single, married, and other respectively. Our study found that for the marital status, single respondents are 31.4 percent, married are 35 percent, and other categories are 31 percent. At the same time, these respondents belong to age categories of 20-25 with a total frequency distribution of 53,between the age of 26-30 are 63 respondents, and between 31-35 years are 56 respondents. Meanwhile, those who are above the age of 36 and above are 54 covering a percentage score of 23.9 percent. For the annual income, our study has divided the respondent's view into three major categories which are low income, medium income and high income. For the low income, overall respondent are 74 with a score of 32.7 percent. For those who are earning a medium annual income are 70 and finally there are 82 respondents getting a higher level of earnings from different sources. Lastly, our demographic results are dealing with the educational background where total 53 respondents have done their intermediate, 52 have completed their graduation level, 57 have done their masters and 64 are those who have completed their other degree or the courses.

TABLE 3: Details about Demographic Factors

gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	M	125	55.3	55.3	55.3
	F	101	44.7	44.7	100.0
	Total	226	100.0	100.0	
Marital Status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	77	34.1	34.1	34.1
	Married	79	35.0	35.0	69.0
	other	70	31.0	31.0	100.0
	Total	226	100.0	100.0	
Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-25	53	23.5	23.5	23.5
	26-30	63	27.9	27.9	51.3
	31-35	56	24.8	24.8	76.1
	36 and above	54	23.9	23.9	100.0
	Total	226	100.0	100.0	
Annual Income					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	74	32.7	32.7	32.7

	Mediums	70	31.0	31.0	63.7
	High	82	36.3	36.3	100.0
	Total	226	100.0	100.0	
Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Intermediate	53	23.5	23.5	23.5
	Graduation	52	23.0	23.0	46.5
	Master	57	25.2	25.2	71.7
	other	64	28.3	28.3	100.0
	Total	226	100.0	100.0	

As per the study objective, our research has observed the influence of pharmaceutical medicines on the social norms, values and attitudes of the people living in Thailand. For getting the marginal effect of selected items for pharmaceutical products and their characteristics, results are provided in the Table 4 where A to J are observed as main items for the independent variables and for the dependent variable, Mean score of NB was calculated and regressed against all of these items. Our study results have provided the first findings under Table 4 where the Impact of Pharmaceutical Products and Their Characteristics on Mean value of Normative Believe is tested and presented. It is accepted that the regression coefficients are showing both positive and negative trends. The influence of "A" or the mean responses of the respondents view about license of pharmaceutical products by the relevant National Drug Regulatory on normative believe is positive but insignificant indicating no relationship between the both. On the other hand, the "B" factor has provided the evidence for its positive and significant impact on the Mean NB with the value of .120 and significant level of 10 percent. It means that higher product registration and currently marketing trends are positively impacting on the normative believes for the local community of Thailand. However, results shown that there is no impact of factor C to G on mean value of NB. Additionally, it is accepted that label language for the pharma products have shown their positive impact on normative believe of the local respondents and this effect is evident with the marginal value of 0.145 and significant level of 5 percent. In the end, results under Table 4 are showing that higher commitment from the manufacturer is also a positive determinant for the normative believe in Thailand. our study also confirms that there is a significant relationship between the pharmaceutical product dynamics and normative believe as F-test is highly significant. However, it is also confirmed that only a small variation of 16.5 percent is found in normative believe through A to J factors as explained in the foot note.

TABLE 4: Impact of Pharmaceutical Products and Their Characteristics on Mean value of Normative Believe

Mean NB	Coef.	St.Err	t-value	p-value	Sig.
A	0.015	0.072	0.21	0.831	
B	0.120	0.067	-1.79	0.076	*
C	0.039	0.066	0.58	0.559	
D	0.032	0.068	0.48	0.635	
E	0.021	0.065	0.33	0.744	
F	-0.040	0.069	-0.58	0.562	
G	-0.039	0.070	-0.56	0.578	
H	0.145	0.073	1.98	0.050	**
I	0.071	0.069	1.03	0.304	
J	0.143	0.066	2.16	0.032	**
_cons	2.248	0.708	3.17	0.002	***
Mean dependent var	3.055	SD dependent var	1.426		
R-squared	0.165	Number of Respondents	226		
F-test	6.325	Prob > F	0.000		

Foot Note: A: licensed by the relevant National Drug Regulatory, B: Product registered and currently marketed, C: Product registered for export only, D: The manufacturing method for each standard batch size has been validated?, E: Stability testing data available, F: Satisfactory accelerated testing, G: Label and insert information, H: Label language, I: Active Pharmaceutical Ingredients(s) (APIs), J: Commitment from the manufacturer.*** p<0.01, ** p<0.05, * p<0.1, NB: Normative Believe.

TABLE 5: Impact of Pharmaceutical Products and Their Characteristics on Mean value of Social Norms

Mean SN	Coef.	St.Err	t-value	p-value	Sig.
A	0.056	0.074	0.76	0.449	
B	-0.072	0.069	-1.05	0.296	
C	-0.046	0.067	-0.68	0.497	

D	-0.036	0.070	-0.51	0.610	
E	0.136	0.067	2.04	0.043	**
F	-0.021	0.070	-0.30	0.766	
G	0.043	0.072	0.60	0.548	
H	0.004	0.075	0.06	0.954	
I	0.036	0.070	0.52	0.603	
J	-0.046	0.067	-0.68	0.500	
_cons	2.778	0.723	3.84	0.000	***
Mean dependent var	2.936	SD dependent var	1.435		
R-squared	0.036	Number of Respondent	226		
F-test	0.783	Prob > F	0.645		

Foot Note: A: licensed by the relevant National Drug Regulatory, B: Product registered and currently marketed, C: Product registered for export only, D: The manufacturing method for each standard batch size has been validated?, E: Stability testing data available, F: Satisfactory accelerated testing, G: Label and insert information, H: Label language, I: Active Pharmaceutical Ingredients(s) (APIs), J: Commitment from the manufacturer.*** p<0.01, ** p<0.05, * p<0.1, SN: Social Norms

TABLE 6: Impact of Pharmaceutical Products and Their Characteristics on Mean value of Attitude

Mean AT	Coef.	St.Err	t-value	p-value	Sig.
A	-0.138	0.070	-1.97	0.051	*
B	0.235	0.066	3.56	0.000	***
C	0.044	0.064	0.68	0.499	
D	0.036	0.067	0.53	0.594	
E	-0.087	0.064	-1.36	0.174	
F	0.289	0.067	4.31	0.000	***
G	0.022	0.068	0.33	0.745	
H	0.038	0.071	0.54	0.591	
I	0.029	0.067	0.44	0.664	
J	0.058	0.064	0.90	0.372	
_cons	2.950	0.690	4.28	0.000	***
Mean dependent var	2.995	SD dependent var	1.370		
R-squared	0.037	Number of respondent	226		
F-test	0.804	Prob > F	0.625		

Foot Note: A: licensed by the relevant National Drug Regulatory, B: Product registered and currently marketed, C: Product registered for export only, D: The manufacturing method for each standard batch size has been validated?, E: Stability testing data available, F: Satisfactory accelerated testing, G: Label and insert information, H: Label language, I: Active Pharmaceutical Ingredients(s) (APIs), J: Commitment from the manufacturer.*** p<0.01, ** p<0.05, * p<0.1, AT: Attitude

CONCLUSION

Pharmaceutical industry is playing a significant role for all types of community members. Meanwhile, it is believed that various social norms, attitude, and beliefs are some of the core dynamics in the society which define the overall social structure in a society. Our study has a core objective to investigate the relationship between pharmaceutical product dynamics and their impact on the social norms, values, beliefs and attitude. with the help of sample respondents of 226, study results shows a good understanding about how the ten factors of pharmaceutical dynamics are impacting on social norms, and values. More specifically, it is observed that there is a significant and positive influence of product registration and currently marketed on the mean score of normative belief, positive and significant influence from label language on mean value of normative belief, and significant positive impact on mean normative belief by commitment from the manufacturer. On the other hand, the influence from stability testing and relevant data has shown its significant and positive influence on the man value of social norms. Lastly our results have provided the evidence for the significant and negative impact from the licensed by the relevant national drug regulatory authority on the attitude of the community members. Whereas, significant and positive influence from product registration and marketing, and satisfactory accelerated testing on the mean score of attitude. As per these findings, our study is recommended to various policy makers in the pharma industry specifically in the region of Thailand where the study results were found. However, other nearby regions like Indonesia, and Malaysia can also use the study results for their understanding. Meanwhile, some limitations were also found as associated to this research. For instance, our study is limited in terms of regional implications, sample size, and application of advanced techniques like structural equation modelling. Future studies are highly recommended to cover these limitations for more understanding and better implications.

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