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MARKETING OF ANTI-ULCER DRUGS TO THE END-USERS

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ABSTRACT: The paper focuses on different marketing techniques in Pharmaceutical Industry with reference to anti-ulcer drugs. This is an industry where a number of characteristics like, efficacy, quality and safety matters while delivering a product (i.e. the drug). This study comes up with drug development and the various aspects of bringing the product to the market. Secondly, it deals with determining the relationship between type of anti-ulcer drug prescribed and various product related factors. Thirdly, it focuses on strategies required for establishing strong presence in the therapeutic category. **Methods and Materials:** Testing of hypothesis is conducted among the type of anti-ulcer drug prescribed and elements of the marketing mix. **Result:** The important elements in prescribing anti-ulcer drugs to patients are determined.

INTRODUCTION: Ulcer: Ulcer is erosion or sore where tissue has been destroyed by the gastric juices and stomach acid. Usually, peptic ulcer occurs in the lining of the stomach or the duodenum [1]. Ulcers are a very common condition seen throughout the world and in India. Millions of people are affected by the ulcers annually. The primary reason for the increase in number of patients affected by peptic ulcer are due to the Stress, lifestyle changes, alcohol consumption, smoking etc [2, 3]. The major indication where anti-ulcer drug usage is seen is in critical care, during acute gastritis, for treating peptic ulcer, during gastro-oesophageal reflux and also for other treatments along with analgesics.

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Anti-ulcers drugs are classified into proton-pump inhibitors, antacids, histamine antagonists, sucralfate and others [4, 5].

This paper reviews the marketing practices in the pharmaceutical sector, examining both the doctor and pharmacist oriented promotion. It presents the marketing practices and their impact on the doctors & pharmacists. It also, identifies the factors necessary for marketers in pharmaceutical sector in executing the best strategies for both the end-users prescribing anti-ulcer drugs [6].

The marketing mix elements in the pharmaceutical marketing are:

Pharmaceutical drugs are classified into three categories. They are branded, branded-generic and generic drugs. The branded and generic drugs will have the same active ingredient. And both pass the bio-equivalence tests [7]. But still there is

misconception that generic drugs are sub standard drugs both in doctors as well as in the minds of the patient [8, 9]. The paper tests the association of the type of anti-ulcer drug and the elements of the marketing mix.

Objective of the study:
This study focuses on finding the important market related factors like product, price place and promotion. The research is done to find out the expectation of doctors and pharmacists from anti-ulcer drugs.

Hypothesis:

1. There is no significant association between type of anti-ulcer drugs prescribed and the quality of ingredient
2. There is no significant association between type of anti-ulcer drugs prescribed and product name.
3. There is no significant association between type of anti-ulcer drugs prescribed and product attribute factors
4. There is no significant association between type of anti-ulcer drugs prescribed and price.
5. There is no significant association between type of anti-ulcer drugs prescribed and distribution.
6. There is no significant association between type of anti-ulcer drugs prescribed and promotion.

Questionnaire:
After an extensive study of the available previous literature a questionnaire was developed. The responses were collected through Likert's scale of "Strongly Disagree - Strongly Agree" (5 point scale).[10]

Research sample:
The targeted sample is the doctors and pharmacists in the industry who prescribe anti-ulcer drugs. The doctors and pharmacists were approached via medical representatives. The target sample population consists of doctors of various specialities like general surgeon, general medicine and gastro enterologists etc.

Data collection:
The questionnaire was directly distributed and collected from the research sample and is entered into a spreadsheet and uploaded into SPSS tool. The questionnaire had a covering letter introducing and explaining the purpose of the research. The data was collected from 113 valid responses and have been analyzed through SPSS 17.

Reliability:

Reliability Statistics

Profession	Cronbach's Alpha	N of Items
Doctors	.832	9
Pharmacists	.523	9

Scale Statistics

Profession	Mean	Variance	Std. Deviation	N of Items
Doctors	34.23	16.487	4.060	9
Pharmacists	35.03	4.654	2.157	9

Inference: Cronbach's alpha has been run for to check their reliability profession wise. The above table displays some of the results obtained. The overall alpha values for the Doctors and Pharmacists of all items are 0.832 and 0.523 respectively; these values are very high and indicate strong internal consistency among the given items [11].

RESULT ANALYSIS:
Crosstabs:
Type of anti-ulcer drugs prescribed * factors influencing in choice of anti-ulcer drug on the basis quality of ingredient:

H0: There is no significant association between type of anti-ulcer drugs prescribed and the quality of ingredient

H1: There is a significant association between type of anti-ulcer drugs prescribed and the quality of ingredient.

TABLE: 1 RESPONDENT'S OPINION ON THE QUALITY OF INGREDIENT AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Crosstab

			Factors influencing in choice of anti-ulcer drug on the basis quality of ingredient			Total
			Neutral	Agree	Strongly Disagree	
Type of anti-ulcer drugs prescribed	Branded	Count	11	49	12	72
		% within Type of anti-ulcer drugs prescribed	15.3%	68.1%	16.7%	100.0%
	Branded Generic	Count	11	13	4	28
		% within Type of anti-ulcer drugs prescribed	39.3%	46.4%	14.3%	100.0%
	Generic	Count	4	8	1	13
		% within Type of anti-ulcer drugs prescribed	30.8%	61.5%	7.7%	100.0%
Total		Count	26	70	17	113
		% within Type of anti-ulcer drugs prescribed	23.0%	61.9%	15.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.561[a]	4	.109

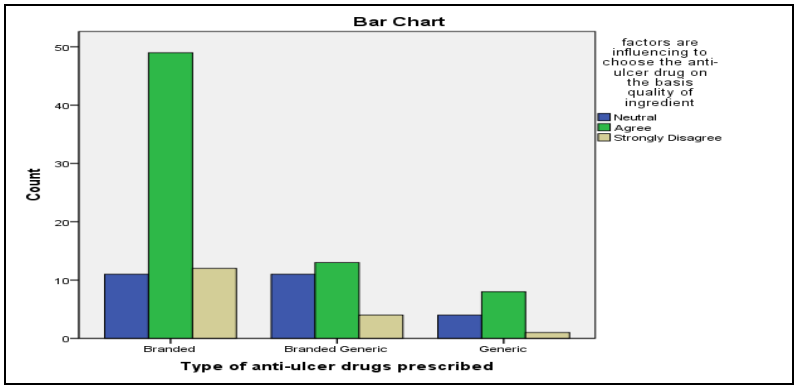
a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.96.

From the above table chi square is not significant (sig. value is 0.109 which is greater than 0.05), no evidence to reject null hypothesis. It means that there is no significant association between type of anti-ulcer drugs prescribed and their opinions on factors are influencing to choose the anti-ulcer drug on the basis quality of ingredient [12].

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.259	.109
	Cramer's V	.183	.109
N of Valid Cases		113	

The strength of association between type of anti-ulcer drugs prescribed and their opinions on factors influencing in choice of the anti-ulcer drug on the basis quality of ingredient is 0.183



GRAPH 1: RESPONDENT'S OPINION ON THE QUALITY OF INGREDIENT AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Type of anti-ulcer drugs prescribed and product name factors:

H0: There is no significant association between type of anti-ulcer drugs prescribed and product name.

H1: There is a significant association between type of anti-ulcer drugs prescribed and product name [13].

TABLE 2: RESPONDENT'S OPINION ON PRODUCT NAME AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Crosstab

			Opinions of prescribing an anti-ulcer drug based on product name factors				Total
			Disagree	Neutral	Agree	Strongly Disagree	
Type of anti-ulcer drugs prescribed	Branded	Count	0	21	44	7	72
		% within Type of anti-ulcer drugs prescribed	.0%	29.2%	61.1%	9.7%	100.0%
	Branded Generic	Count	0	11	14	3	28
		% within Type of anti-ulcer drugs prescribed	.0%	39.3%	50.0%	10.7%	100.0%
	Generic	Count	1	4	7	1	13
		% within Type of anti-ulcer drugs prescribed	7.7%	30.8%	53.8%	7.7%	100.0%
Total		Count	1	36	65	11	113
		% within Type of anti-ulcer drugs prescribed	.9%	31.9%	57.5%	9.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.896[a]	6	.179

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .12.

From the above table chi square is not significant (sig. value is 0.179 which is greater than 0.05), no evidence to reject null hypothesis. It means that there is no significant association between type of anti-ulcer drugs prescribed and their opinions on product name factors.

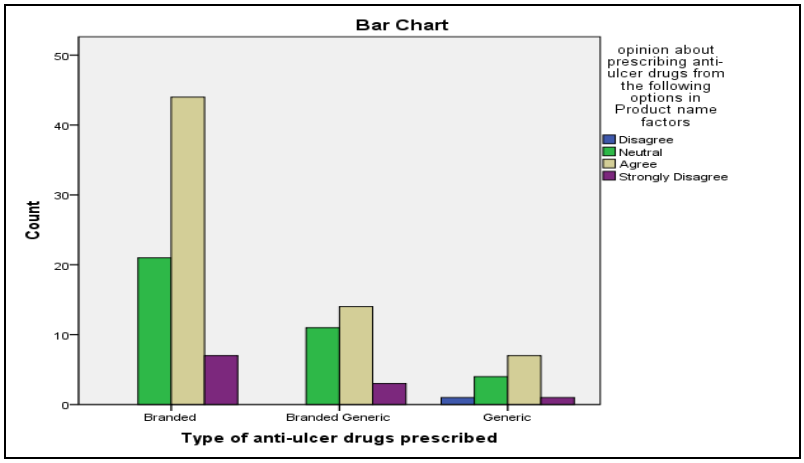
Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.281	.179
	Cramer's V	.198	.179
N of Valid Cases		113	

The strength of association between type of anti ulcer drugs prescribed and their opinions on product name factors is 0.198.

Type of anti-ulcer drugs prescribed and product attribute factors: H0: There is no significant association between type of anti-ulcer drugs prescribed and product attribute factors.

H1: There is a significant association between type of anti-ulcer drugs prescribed and product attribute factors [14].



GRAPH 2: RESPONDENT'S OPINION ON PRODUCT NAME AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

TABLE 3: RESPONDENT'S OPINION ON PRODUCT ATTRIBUTE FACTORS AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Crosstab

			Opinions of prescribing an anti-ulcer drug based on product attribute factors			Total
			Neutral	Agree	Strongly Disagree	
Type of anti-ulcer drugs prescribed	Branded	Count	11	43	7	61
		% within Type of anti-ulcer drugs prescribed	18.0%	70.5%	11.5%	100.0%
	Branded Generic	Count	12	12	4	28
		% within Type of anti-ulcer drugs prescribed	42.9%	42.9%	14.3%	100.0%
	Generic	Count	9	3	1	13
		% within Type of anti-ulcer drugs prescribed	69.2%	23.1%	7.7%	100.0%
Total		Count	32	58	12	102
		% within Type of anti-ulcer drugs prescribed	31.4%	56.9%	11.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.483[a]	4	.002

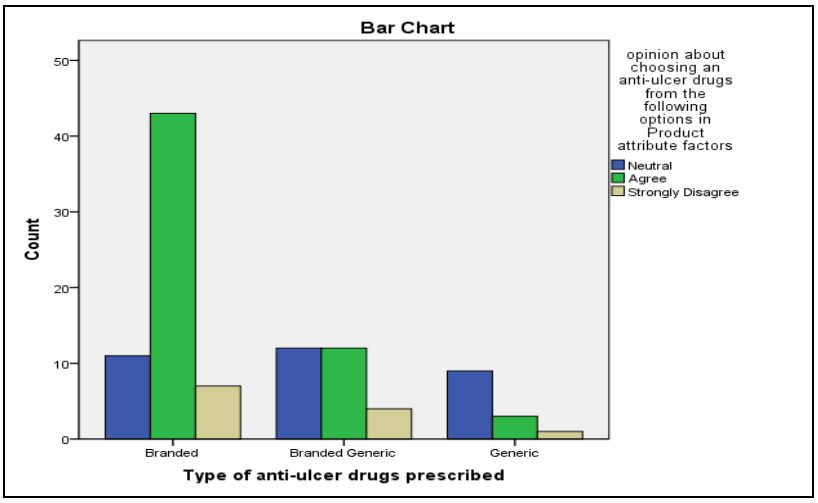
a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.53.

From the above table chi square is significant (sig. value is 0.002 which is less than 0.05), reject null hypothesis. It means that there is a significant association between type of anti-ulcer drugs prescribed and their opinions choosing antiulcer drugs based on product attribute factors.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.402	.002
	Cramer's V	.284	.002
N of Valid Cases		102	

The strength of association between type of anti-ulcer drugs prescribed and their opinions choosing antiulcer drugs based on product attribute factors is 0.284



GRAPH: 3 RESPONDENT'S OPINION ON PRODUCT ATTRIBUTE FACTORS AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Type of anti-ulcer drugs prescribed and price factors:

H0: There is no significant association between type of anti-ulcer drugs prescribed and their opinions on choosing an antiulcer drug from the following options in price factors

H1: There is a significant association between type of anti-ulcer drugs prescribed and their opinions on choosing an antiulcer drug from the following options in price factors.

TABLE 4: RESPONDENT'S OPINION ON PRICE AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Crosstab

			Opinions of prescribing an anti-ulcer drug based on price factors				Total
			Disagree	Neutral	Agree	Strongly Disagree	
Type of anti-ulcer drugs prescribed	Branded	Count	3	30	27	12	72
		% within Type of anti-ulcer drugs	4.2%	41.7%	37.5%	16.7%	100.0%
	Branded Generic	Count	2	3	19	5	29
		% within Type of anti-ulcer drugs prescribed	6.9%	10.3%	65.5%	17.2%	100.0%
	Generic	Count	0	5	8	0	13
		% within Type of anti-ulcer drugs prescribed	.0%	38.5%	61.5%	.0%	100.0%
Total		Count	5	38	54	17	114
		% within Type of anti-ulcer drugs prescribed	4.4%	33.3%	47.4%	14.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.436[a]	6	.037

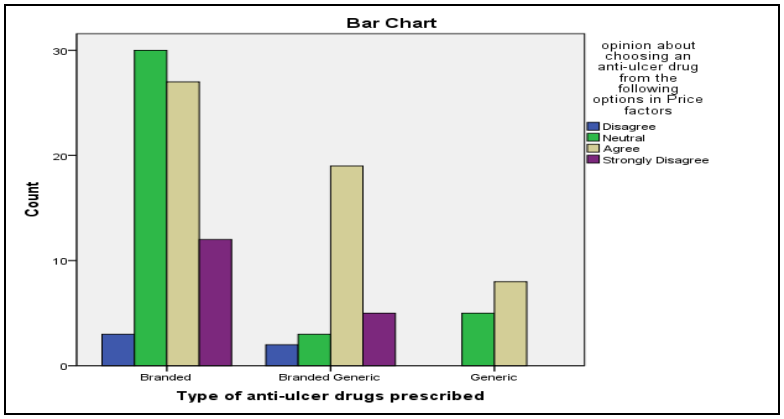
a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .57.

From the above table chi square is significant (sig. value is 0.037 which is less than 0.05), reject null hypothesis. It means that there is a significant association between type of anti-ulcer drugs prescribed and their opinions on choosing an antiulcer drug from the following options in price factors.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.343	.037
	Cramer's V	.243	.037
N of Valid Cases		114	

The strength of association between type of anti-ulcer drugs prescribed and their opinions on choosing an antiulcer drug from the following options in price factors is 0.243.



GRAPH 4: RESPONDENT'S OPINION ON PRICE AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Type of anti-ulcer drugs prescribed and distribution factors:

H0: There is no significant association between type of anti-ulcer drugs prescribed and distribution

H1: There is a significant association between type of anti-ulcer drugs prescribed and distribution.

TABLE 5: RESPONDENT'S OPINION ON THE TYPE OF ANTI-ULCER DRUG PRESCRIBED AND DISTRIBUTION

Crosstab

			Opinions of prescribing an anti-ulcer drug based on distribution factors				Total
			Disagree	Neutral	Agree	Strongly Disagree	
Type of anti-ulcer drugs prescribed	Branded	Count	1	19	43	8	71
		% within Type of anti-ulcer drugs prescribed	1.4%	26.8%	60.6%	11.3%	100.0%
	Branded Generic	Count	0	5	20	4	29
		% within Type of anti-ulcer drugs prescribed	.0%	17.2%	69.0%	13.8%	100.0%
	Generic	Count	0	6	6	1	13
		% within Type of anti-ulcer drugs prescribed	.0%	46.2%	46.2%	7.7%	100.0%
Total		Count	1	30	69	13	113
		% within Type of anti-ulcer drugs prescribed	.9%	26.5%	61.1%	11.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.494[a]	6	.610

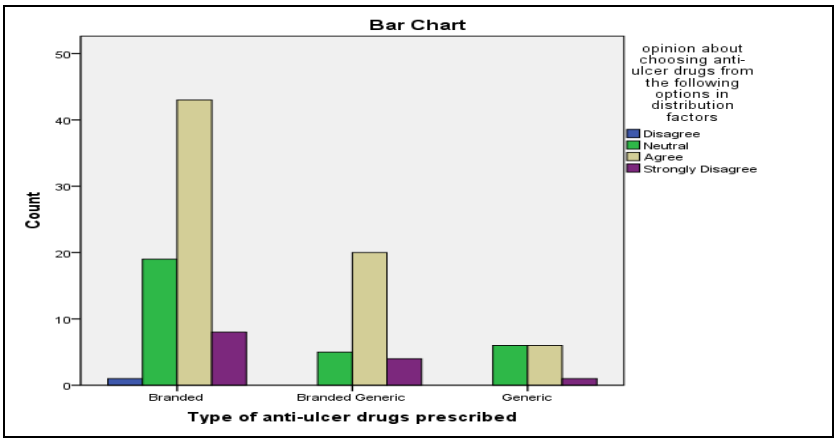
a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .12.

From the above table chi square is not significant (sig. value is 0.610 which is greater than 0.05), no evidence to reject null hypothesis. It means that there is no significant association between type of anti-ulcer drugs prescribed and their opinions on choosing anti-ulcer drugs from the following options in distribution factors.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.199	.610
	Cramer's V	.141	.610
N of Valid Cases		113	

The strength of association between type of anti-ulcer drugs prescribed and their opinions on choosing anti-ulcer drugs from the following options in distribution factors is 0.141



GRAPH 5: RESPONDENT'S OPINION ON THE TYPE OF ANTI-ULCER DRUG PRESCRIBED AND DISTRIBUTION

Type of anti-ulcer drugs prescribed and promotional inputs with respect to anti-ulcer drugs: H0: There is no significant association between type of anti-ulcer drugs prescribed and promotion inputs H1: There is a significant association between type of anti-ulcer drugs prescribed and promotion inputs.

TABLE 6: RESPONDENT'S OPINION ON PROMOTION INPUTS AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Crosstab

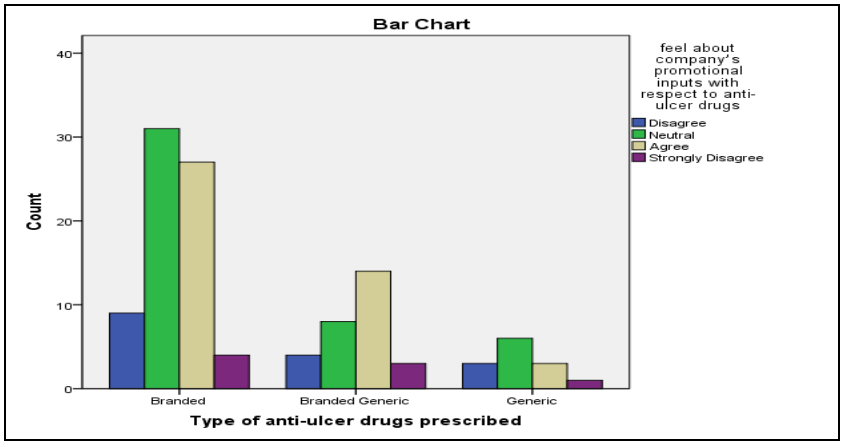
			feel about company's promotional inputs with respect to anti-ulcer drugs				
			Disagree	Neutral	Agree	Strongly Disagree	Total
Type of anti-ulcer drugs prescribed	Branded	Count	9	31	27	4	71
		% within Type of anti-ulcer drugs prescribed	12.7%	43.7%	38.0%	5.6%	100.0%
	Branded Generic	Count	4	8	14	3	29
		% within Type of anti-ulcer drugs prescribed	13.8%	27.6%	48.3%	10.3%	100.0%
	Generic	Count	3	6	3	1	13
		% within Type of anti-ulcer drugs prescribed	23.1%	46.2%	23.1%	7.7%	100.0%
Total		Count	16	45	44	8	113
		% within Type of anti-ulcer drugs prescribed	14.2%	39.8%	38.9%	7.1%	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.485[a]	6	.611
a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .92.			

From the above table chi square is not significant (sig. value is 0.611 which is greater than 0.05), no evidence to reject null hypothesis. It means that there is no significant association between type of anti-ulcer drugs prescribed and their opinions on feel about company's promotional inputs with respect to anti-ulcer drugs.

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.199	.611
	Cramer's V	.141	.611
N of Valid Cases		113	

The strength of association between type of anti-ulcer drugs prescribed and their opinions on feel about company's promotional inputs with respect to anti-ulcer drugs is 0.141.



GRAPH 6: RESPONDENT'S OPINION ON PROMOTION INPUTS AND THE TYPE OF ANTI-ULCER DRUG PRESCRIBED

Null Hypotheses	Sig. Value	Result	Strength of Association (%)
H0: There is no significant association between type of anti-ulcer drugs prescribed and the quality of ingredient	0.109	Rejected	18.3
H0: There is no significant association between type of anti-ulcer drugs prescribed and product name	0.179	Rejected	19.8
H0: There is no significant association between type of anti-ulcer drugs prescribed and product attribute factors.	0.002	Accepted	28.4
H0: There is no significant association between type of anti-ulcer drugs prescribed and their opinions on choosing an antiulcer drug from the following options in price factors	0.037	Accepted	24.3
H0: There is no significant association between type of anti-ulcer drugs prescribed and distribution	0.610	Rejected	14.1
H0: There is no significant association between type of anti-ulcer drugs prescribed and promotion inputs	0.611	Rejected	14.1

CONCLUSION: The results are giving the important attributes which doctors and pharmacists are looking for. Product attributes and Price have come out to be important elements in prescribing drugs to patients with reference to anti-ulcer drugs. Pharmaceutical companies are giving lot of efforts in making good medicines. They still need to come up with more advancement during the stages of drug development. So, they can come up with drugs that have better safety and efficacy as well

with fewer side effects. The results also revealed that Pharmaceutical companies need to come up with new pricing strategies to sustain the competition as the end-users are looking forward for pricing while prescribing drugs to the patients.

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