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The Impact of Education Through WhatsApp on Awareness in the Field of Medicine, Food, Cosmetics and Natural Medicines.

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Abstract

The demands from the public, businesses, and the government on BPOM are very high, while BPOM's monitoring scope is extensive, and its resources (human, time, budget, facilities, and infrastructure) are limited. A Key performance targets is achieving a Community Awareness Index (IKM) for safe medicines and food of 87% across its regional offices. In Lampung Province, the IKM realization in 2021–2023 reached 71.2, 75.29, and 88.16, against targets of 85.00, 87.00, and 89.00.To improve IKM, BBPOM Bandar Lampung introduced an innovation called ***BeCaK*** *(Balai Besar POM Bandar Lampung Campaign Ok), an educational program on medicines, food, cosmetics, and natural products through WhatsApp. Implemented from June to December 2024. The objective of this research is to determine the impact of education via WhatsApp on awareness regarding medicines, food, cosmetics, and natural products among BeCaK respondents.The research methodology is quantitative, statistikal tests such as validity, reliability, normality, ANOVA, and linear regression. This is experimental studies. The population consisting of all BeCaK respondents with criteria respondents who is willing to receive education via WhatsApp and participate in surveys. The sampling technique used is total sampling, the entire population of 46 individuals.The findings is education via WhatsApp has an impact of 19.6% (R^2) on the awareness of BeCaK program respondents, while the remaining 80.4% is influenced by other factors. Recommendations from this research are BBPOM Bandar Lampung should continue this innovation and replicate it in others, also increasing the number of respondents so the results are more representative and generalizable to a broader population.*

Keywords: Awareness, BeCaK, Communication Theory, Education, WA.

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INTRODUCTION

Indonesian society, especially in Bandar Lampung, still has not known and realized the importance of the role of BBPOM Bandar Lampung as a Protector and Supervisor of Safe Drugs and Food. Meanwhile, the demands of the community, actors and government towards BPOM are very high. While the scope of supervision area in BPOM is very broad and Resources (Human, time, costs, facilities and infrastructure) are limited. Added to this is the difficulty of planning, implementation and coordination across sectors and covering a very wide area of supervision in BBPOM Bandar Lampung 35,587 Km2 (10 regencies and 2 cities) while resources in BBPOM Bandar Lampung are limited (time, human resources and costs). One of the performance targets is the Public Awareness Index of safe drugs and food in each UPT of 89%. In Lampung Province, the realization of IKM in 2021–

2023 reached 71.2, 75.29, and 88.16 respectively from the targets of 85.00, 87.00, and 89.00. (Lapkin 2023).

Quote from the Chairman of Commission IX of the Indonesian House of Representatives, Ansory Siregar, on February 7, 2022: "Strengthening the BPOM, especially in the field of drug and food supervision, by creating proportional programs and activities. Work programs for regions in collaboration with partners through strengthening communication strategies and efforts to increase understanding, awareness, and public participation in drug and food supervision."

This data demonstrates a gap between reality and expectations. Meanwhile, advertising a product or service through TV and billboards, reaching all levels of society, costs tens to hundreds of millions of rupiah, and outreach/IEC (Information and Communication Technology) to specific locations or with BPOM Ambassadors in the community also requires significant costs, planning, and time. One effort to increase the SMEs of the Bandar Lampung BPOM is implementing an innovation called BeCaK (Balai Besar POM Bandar Lampung Campaign Ok). BeCaK is a public education program about drugs, food, cosmetics and OBA through WA and has been implemented for 6 months, June-December 2024. In this study, education through WA will be discussed because it is considered that the community is already familiar with WA to communicate and disseminate information. It is hoped that the dissemination of this information can have an influence and increase awareness of the Lampung community about drugs and food. The problem raised is how much influence does education through WA (implementation of BeCaK innovation) have on awareness in the fields of medicine, food, cosmetics and OBA and how SWOT analysis is used in the implementation of BeCaK innovation.

Research shows that WhatsApp (WA) plays a significant role in various communication and educational information. Some findings include WhatsApp significantly improving pregnant women's knowledge about childbirth. Research by Sulistianingsih and colleagues (2021) showed a significant difference in the increase in pregnant women's knowledge regarding childbirth preparation between the control and treatment groups ($p < 0.05$). Furthermore, the use of WhatsApp group communication has been shown to be effective in improving employee performance at PT Smartphone Lenovo Medan, with a correlation value of 0.627 and a coefficient of determination of 39.31%. This indicates a fairly strong relationship, where the use of WhatsApp facilitates the process of conveying information between employees, especially for those who are members of the group, resulting in more efficient and targeted communication (Sitepu et al., 2021). WhatsApp contributed 38.5% to the dissemination of learning information (Pangestika, 2018). WhatsApp increased tempeh sales with an increase in orders after using this application (Aini et al., 2023). WhatsApp-based promotions had a 46.3% influence on purchasing decisions for HWI products (Sari et al., 2023). WhatsApp use influenced students' knowledge about cigarettes and their attitudes toward smoking (Gafi et al., 2019). WhatsApp contributed 31% to farmers' interest in participating in agricultural insurance (Alif, 2023). WhatsApp use had an 84.8% influence on improving student learning discipline (Suryadi et al., 2018). The results of this study indicate a significant relationship between WhatsApp use (X) and interpersonal communication (Y). WhatsApp influenced interpersonal communication with an 8.4% influence (Sumirat, 2017). Communication via WhatsApp between boarding house managers and tenants has been proven effective in increasing customer satisfaction (Asfahani, 2022). Research conducted by Hanifah and colleagues (2023) revealed that the behavior of hydroponic community members, encompassing knowledge (cognitive), attitudes (affective), and skills (psychomotor), was largely in the high category, at 55%. This behavior was supported by a high level of digital literacy, while the frequency or intensity of social media use was relatively low.

The results of research by Retnaningtyas and colleagues (2021) showed a significant relationship between individual need motives and the level of satisfaction obtained from using WhatsApp. This finding aligns with the Uses and Gratifications theory, which states that individuals use social media based on specific need motives, with the expectation that the media will fulfill those needs. This theory also emphasizes that audiences have the freedom and active role to choose and determine the social media platform that best meets their needs. Previous research only discussed the magnitude of the influence, while this research will add a SWOT analysis obtained from questionnaires and respondent testimonials.

WhatsApp is an instant messaging application designed to facilitate communication between users through various formats, such as text, voice messages, images, videos, documents, and voice and video calls, using an internet connection. This application was originally developed by WhatsApp Inc. and was officially acquired by Facebook, now known as Meta Platforms, in 2014. To maintain the privacy and security of communications, WhatsApp implements an end-to-end encryption system, which ensures that messages can only be read by the sender and recipient. The purpose of this study is to determine the magnitude of the influence of education through WA (implementation of BeCaK innovation) on awareness in the fields of medicine, food, cosmetics and OBA and how SWOT analysis is used in the application of BeCaK innovation. The benefits of this study are: theoretically, this study is expected to contribute to the development of Communication Science studies and add to the treasury of media studies. And this study can be used as reference material for similar research. Practically, the results of this study are expected to be information regarding the effects / influences of exposure to social media on the audience. This study can also be a source of consideration for policy makers at BPOM to utilize social media for promotion and persuasion.

METHOD

This research is an experimental study with a quantitative approach. The data obtained were analyzed using SPSS version 26 software through several stages of statistical testing. The initial stage involved a validity test to assess the extent to which the research instrument accurately measured the variables it was intended to measure. An instrument is considered valid if it accurately represents the construct being studied. Next, a reliability test was conducted to determine the instrument's consistency in generating data. An instrument is considered reliable if it produces relatively similar results when used in repeated measurements under different conditions.

Next, classical assumption tests were conducted, including normality and linearity tests. The normality test aims to determine whether the research data is normally distributed, which is a prerequisite for parametric statistical analysis. Meanwhile, the linearity test is used to ensure that the relationship between the independent and dependent variables is linear, making it suitable for analysis using linear regression. The next stage is a simple linear regression analysis, used to determine the effect of the independent variables on the dependent variable. This analysis aims to determine the extent to which changes in the independent variables can affect the dependent variable in a linear relationship.

Hypothesis testing in this study was conducted using several statistical tests. The parameter significance test (t-test) is used to determine the partial influence of the independent variable on the dependent variable with a significance level of 0.05. In addition, the coefficient of determination (R^2) is used to measure the ability of the regression model to explain the variation of the dependent variable, where an R^2 value

approaching 1 indicates increasingly better explanatory ability. Finally, the correlation coefficient test (r) is used to determine the strength and direction of the relationship between the independent and dependent variables, whether positive or negative, and to see the level of closeness of the relationship between the variables studied.

RESULT AND DISCUSSION

Validity Test

The instrument in this study is valid as evidenced by the calculated r value > r table and p value (significance) < 0.05 with a significance of 5% (Sugiyono, 2011), calculated r is the Pearson correlation value and r table for N = 46 respondents is 0.291. From tables 1 and 2 below, all questionnaire items for variables X and Y are proven to be valid, except for question items X4 and X9 which are invalid (calculated r value < r table and p value (significance) > 0.05) therefore they are not tested in further statistical tests.

Table 1. Validity Test of Questionnaire Variable X

Variabel X	**Correlation**	
	Pearson Correlation & Sig	***Total X***
x1	Pearson Correlation	.904**
	Sig. (2-tailed)	0,000
x2	Pearson Correlation	.914**
	Sig. (2-tailed)	0,000
x3	Pearson Correlation	.923**
	Sig. (2-tailed)	0,000
x4	Pearson Correlation	0,246
	Sig. (2-tailed)	0,099
x5	Pearson Correlation	.866**
	Sig. (2-tailed)	0,000
x6	Pearson Correlation	.898**
	Sig. (2-tailed)	0,000
x7	Pearson Correlation	.349*
	Sig. (2-tailed)	0,017
x8	Pearson Correlation	.598**
	Sig. (2-tailed)	0,000
x9	Pearson Correlation	0,252
	Sig. (2-tailed)	0,091
x10	Pearson Correlation	.394**
	Sig. (2-tailed)	0,007
totalx	Pearson Correlation	1
	Sig. (2-tailed)	
	N	46

Table 2. Validity Test of Questionnaire for Variable Y

Variabel Y	**Correlation**	
	Pearson Correlation & Sig	***Total Y***
Y1	Pearson Correlation	.703**
	Sig. (2-tailed)	0,000
Y2	Pearson Correlation	.884**
	Sig. (2-tailed)	0,000

Y3	Pearson Correlation	.876**
	Sig. (2-tailed)	0,000
Y4	Pearson Correlation	.847**
	Sig. (2-tailed)	0,000
Y5	Pearson Correlation	.888**
	Sig. (2-tailed)	0,000
Y6	Pearson Correlation	.864**
	Sig. (2-tailed)	0,000
Y7	Pearson Correlation	.859**
	Sig. (2-tailed)	0,000
Y8	Pearson Correlation	.816**
	Sig. (2-tailed)	0,000
Y9	Pearson Correlation	.714**
	Sig. (2-tailed)	0,000
Y10	Pearson Correlation	.658**
	Sig. (2-tailed)	0,000
Y11	Pearson Correlation	.514**
	Sig. (2-tailed)	0,000
Y12	Pearson Correlation	.768**
	Sig. (2-tailed)	0,000
Y13	Pearson Correlation	.815**
	Sig. (2-tailed)	0,000
Y14	Pearson Correlation	.826**
	Sig. (2-tailed)	0,000
Y15	Pearson Correlation	.727**
	Sig. (2-tailed)	0,000
Y16	Pearson Correlation	.832**
	Sig. (2-tailed)	0,000
Y17	Pearson Correlation	.795**
	Sig. (2-tailed)	0,000
Y18	Pearson Correlation	.771**
	Sig. (2-tailed)	0,000
Y19	Pearson Correlation	.746**
	Sig. (2-tailed)	0,000
Y20	Pearson Correlation	.827**
	Sig. (2-tailed)	0,000
Y21	Pearson Correlation	.846**
	Sig. (2-tailed)	0,000
Y22	Pearson Correlation	.849**
	Sig. (2-tailed)	0,000
Y23	Pearson Correlation	.817**
	Sig. (2-tailed)	0,000
Totaly	Pearson Correlation	1
	Sig. (2-tailed)	
	N	46

Reliability Test

An instrument is declared reliable if its measurement results show consistency or stability when used repeatedly under the same conditions. Based on the test results, all items in variables X and Y showed a very high level of reliability, with Cronbach's Alpha values of 0.903 and 0.971, respectively. In determining the level of instrument reliability, researchers referred to the classification of reliability coefficients according to Guilford (in Sugiyono, 2011), which is as follows:

- $0,80 \leq r_{11} \leq 1,00$: very high
- $0,60 \leq r_{1} \leq 0,80$: high
- $0,40 \leq r_{11} \leq 0,60$: medium
- $0,20 \leq r_{11} \leq 0,40$: low
- $0,00 \leq r_{11} \leq 0,20$: very low

Tabel 3. Reliability Test

Cronbach's Alpha	N of Items (Total X)
0,903	8

Cronbach's Alpha	N of Items (Total Y)
0,971	23

Classical Assumption Test

The normality test is performed to determine whether the data distribution is normally distributed or not, because the linear regression model requires normally distributed data. The data normality test can be performed using the One Sample Kolmogorov-Smirnov method. The decision-making criteria are as follows: if the significance value is greater than 0.05, then the data is considered normally distributed. Conversely, if the significance value is less than 0.05, then the data does not meet the assumption of normal distribution (Siregar, 2015). From table 4, the significance value is 0.156 > 0.05.

Table 4. Normality Test

One-Sample Kolmogorov-Smirnov Test	Unstandardized Residual
N	46
Asymp. Sig. (2-tailed)	.156[c]

The linearity test conducted through comparing means showed a significant deviation from linearity value of 0.285, which is greater than 0.05. This indicates that there is a linear relationship between variables X and Y. Linearity itself refers to the ability of an independent variable to predict a dependent variable in a certain relationship pattern (Widana & Muliani, 2020).

Table 5. Linearity Test

ANOVA Table			Sig.
Respondents' Awareness * of the Spread of WA Becak	Between Groups	(Combined)	0,091
		Linearity	0,002
		Deviation from Linearity	0,285

Simple Linear Regression Test

Table 6. Linear Regression Test

Coefficients[a]	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	77,274	6,034		12,806	0,000
Spread of WA Becak	0,710	0,217	0,443	3,274	0,002

Y = 0,710x + 77,274

Simple linear regression analysis is used to determine the direction of the relationship between the independent and dependent variables, whether it is positive or negative, and to predict the value of the dependent variable when there is a change, either an increase or decrease, in the independent variable. The formula used in simple linear regression is as follows (Priyatno, 2011):

Y = a + Bx

With the following information:

- Y: predicted value of the dependent variable (e.g., awareness)
- a: constant, i.e., the value of Y when X = 0
- B: regression coefficient indicating the direction and magnitude of change in the dependent variable (Y) as a result of changes in the independent variable (X)
- x: independent variable (in this context, the effect of WhatsApp Becak use)

Hypothesis Testing

H0 is rejected HA is accepted, it is proven that there is an influence from the results of the t test in table 5 obtained a significance of 0.002 <0.05, and t count 3.274> t table 1.68023. The decision to accept or reject the hypothesis in the t test is based on the significance value and the comparison between the t count and t table values. If the significance value is greater than 0.05 (5%) or the t count is smaller than the t table, then H_0 is accepted and H_a is rejected. This condition indicates that the regression coefficient is not significant, so it can be concluded that partially the independent variable (X) does not have a significant influence on the dependent variable (Y). Conversely, if the significance value is less than 0.05 or the t count is greater than the t table, then H_0 is rejected and H_a is accepted. This means that the regression coefficient is significant and shows that partially the independent variable (X) has a significant influence on the dependent variable (Y). (Priyatno, 2011).

The F test in table 6 also obtained a significance f value of 0.002 < 0.05 and a calculated f value of 10.718 > f table 4.06, which means that there is an influence of the distribution of WA BeCaK on awareness..

Table 6. Uji F

ANOVA[a]	F	Sig.
Regression	10,718	.002[b]

The magnitude of the influence of X on Y can be seen from table 7. The coefficient of determination (R squared) states that there is an influence of X on Y of 19.6% (in this case

for 46 people who filled out the survey.) and the rest is influenced by other things that were not examined in this study. The correlation coefficient (R) of 0.443 means that there is a significant influence between variables X and Y. According to Kriyantono (2014), the level of strength or degree of relationship between variables can be seen through the correlation coefficient value, which is classified as follows:

- • A value less than 0.20 indicates a very weak or almost no relationship.
- • A value between 0.20 and 0.39 indicates a weak but still reliable relationship.
- • A value between 0.40 and 0.70 indicates a significant relationship.
- • A value between 0.71 and 0.90 indicates a strong or high relationship.
- • A value above 0.90 indicates a very strong, very high, and reliable relationship.

The correlation coefficient is a value ranging from -1 to 1. If the relationship between the independent and dependent variables is perfectly linear, the resulting correlation coefficient will be -1 or 1. The positive (+) or negative (–) sign on the correlation coefficient indicates the direction of the relationship, whether it is positive (in the same direction) or negative (in the opposite direction).
According to Yakub (2012), the correlation coefficient is used to measure the strength of the relationship between the independent and dependent variables. The correlation coefficient value is symbolized by r, with the following range:
$-1 \leq r \leq 1$
The explanation of the r value is as follows:

- • If r = 1, then the relationship between variables X and Y is perfect and positive.
- • If r = -1, then the relationship between variables X and Y is perfect but negative.
- • If r = 0, then there is no relationship or a very weak relationship between variables X and Y.

Meanwhile, the coefficient of determination (R^2) is used to measure the extent to which an independent variable explains variation in the dependent variable. According to Ghozali (2018), a small R^2 indicates that the independent variable is only able to explain a small portion of the variation in the dependent variable. Conversely, according to Kuncoro (2001:100), a close R^2 value indicates that the independent variable can explain almost all of the information needed to predict the dependent variable. The R^2 test is also used to determine the extent of the simultaneous contribution of the independent variables to the dependent variable (Priyatno, 2011).

Table 6. Hypothesis Testing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.443[a]	0,196	0,178	10,652

SWOT analysis

Overall, the statistical tests in this study demonstrated valid and reliable results for the research questionnaire, with a normal and linear data distribution. The linear equation indicates a positive relationship (Y = 0.710 X + 77.274), meaning that every 1-unit increase in X will increase Y by 0.710 units, assuming other variables remain constant. Furthermore, there was a significant effect of WhatsApp education on respondent awareness, at 19.6%. It can be concluded that H0 is rejected and HA is accepted.

The questionnaire results and testimonials from respondents who received WhatsApp education also indicated that they were happy and found it helpful, wanted it to be conducted more frequently, with more varied content, and hoped it would engage the

public and even create competitions. Some also hoped for more educational content to be added to Instagram, Facebook, TikTok, and YouTube.

The relationship between WhatsApp education and communication theory can be explained through Uses and Effects Theory and New Media Effect. Uses and Effects Theory explains that individuals use media, in this case WhatsApp, to meet their information needs. Regression results indicate that WhatsApp education has an impact on respondent awareness. This aligns with the theory that media influence is highly dependent on how individuals utilize it. Meanwhile, from the New Media Effect perspective, WhatsApp, as a new medium, has the advantage of reaching individuals personally and quickly. Its effectiveness is evident in the R^2 value of 19.6%. WhatsApp can be an effective educational tool, but additional strategies are needed to deliver a more convincing and impactful message.

Table 7. SWOT Analysis

Factor	Analysis
Strengths	- WhatsApp is easily accessible to a wide range of users. - It enables direct and personal communication of information. - It is easy to use for educational campaigns.
Weaknesses	- Information on WhatsApp can be mixed with misinformation or hoaxes. - The influence on respondents is still relatively low (R^2 = 19.6%). - There is limited two-way interaction when using broadcast messages only.
Opportunities	- It can be integrated with other platforms such as Instagram, YouTube, and webinars, and disseminated through official institutional WhatsApp accounts. - There is a growing trend of digitalization in the health sector.
Threats	- There is a large amount of competing information, including from less credible sources. - The public tends to trust other sources more, such as medical professionals or television.

CONCLUSION

The purpose of this study is to determine the magnitude of the influence of education through WA (implementation of BeCaK innovation) on awareness in the fields of medicine, food, cosmetics and OBA and how SWOT analysis is used in the implementation of BeCaK innovation. Based on the results of statistical tests, education through WA provides a significant positive influence of 19.6% with the equation Y = 0.710 X + 77.274 meaning that every 1 unit increase in X will increase Y by 0.710 units, assuming other variables remain constant. The limitation of the research of this article is that the 19.6% result is limited to respondents who were exposed to WA education only, namely 46 respondents and cannot be generalized to all populations considering the limited number of respondents, time and place of research. The results of the SWOT analysis are recommended to continue education through WA and combine it with Ig, FB, Youtube, Twitter, Webinars, official WA agencies and other online platforms.

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