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Intention to use helmet with quality standard label: an integration model of the hierarchy of effect theory and the information signaling theory

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Abstract

The important role of helmet has been highlighted in the existing literature. However, there is a lack of research on intention to use the helmet with a quality standard label. To fill the gaps in the literature, this study aims to develop and test a model of motorcycle users' intention to use helmet with a quality standard label in Indonesia. This research applied a quantitative research methodology. The data was collected through a survey with questionnaire. 665 respondents were involved in the survey. The data was analyzed using Structural Equation Modeling analysis. The research results showed that the proposed model has goodness of fit, validity, and reliability. Furthermore, the study also revealed that intention to use helmet with a quality standard label is significantly affected by attitude toward helmet with the quality standard label and perceived risk. Perceived risk is significantly affected by the label marketing investment. Attitude is significantly affected by awareness. Awareness is significantly affected by label marketing investment and clarity. The government can use the result of this study to determine right strategies to increase motorcycle users' intention to use helmet with a quality standard label.

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Keywords: Helmet quality label, intention to use, signaling, hierarchy of effect

1. Introduction

In Indonesia, one of the most widely used road transportation modes is motorcycles. The Central Bureau of Statistics (BPS)'s data showed that in 2016, the number of motorcycles in Indonesia is 105,150,082. Furthermore,

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the growth of motorcycle numbers is 8.32% (BPS, 2017). This condition indicates that the use of motorcycle needs to be well regulated by the government.

One of the important things regarding motorcycle use that need attention is the number of traffic accidents involving motorcycles. In Indonesia, it is quite high. Based on data from BPS, in 2014, there have been 108,883 motorcycle accidents. Furthermore, of the total number of deaths from traffic accidents in 2010, 36% are riders or passengers of motorized 2 or 3 wheelers (WHO, 2016).

In the literature, in order to reduce the risk due to motorcycle accidents, one of the recommended equipment that should be used by motorcycle users is a helmet. Empirical studies showed that the use of a helmet can reduce the risk due to motorcycle accidents. For example, an analysis of Rice et al. (2016) indicated that helmets use may reduce the risk of head injury by 60%, fatal injury by 56%, and neck injury by 37%. Liu et al. (2008) conducted a review of 61 papers investigating the use of a helmet by bicycle users. The review results showed that in motorcycle accidents, helmets can reduce the risk of death by 42% and 69% head injury. In line with two previous studies, Khor et al. (2017) investigated the impact of helmet use on motorcycle accidents and proved that helmet use reduces the risk of severe head injury by almost 50%.

In Indonesia, the government has required the use of helmets for motorcycle users. Furthermore, the government also determined that the helmets should be used are helmets that have met a national quality standard, namely the Indonesian National Standard (SNI). The helmets are commonly called SNI-labeled helmets. SNI label is given to the helmet manufacturers to be attached on the helmets if the helmets, which they produced, have successfully fulfilled the technical specifications required by SNI. This is based on an audit conducted by a government-designated product certification body.

The use of helmets with certain quality standards is important. Many studies have proven that the helmet's technical specifications will affect the protective capabilities of the helmet. For example, Becker, Anishchenko, and Palmer (2015) tested the impact response of 15 different helmet models, seven of which have been certified by Snell M2010 and DOT (M2010/DOT) and eight helmet models have been DOT certified. Their results showed that at low impact, M2010/DOT certified helmets transmit equivalent shock to DOT-certified only helmets. However, at higher impact, M2010/DOT certified helmets have a better protective capability. Mills (1990) tested bicycle helmets that meet UK and US standards. The results showed that although the helmets are less able to protect the head from high-velocity direct impact, the helmets can provide protection in the majority of accidents experienced by riders. Bland et al. (2018) tested the protective capability of several types of bicycle helmets. The results indicated that the helmets have different capability to reduce the impact on the head. These three studies prove that differences in technical specifications can lead to differences in protective capabilities.

In Indonesia, the obligatory use of helmets with a national quality standard label is first implemented in 2010 (Standardization Center, 2015). Unfortunately, to date, there are still motorcycle users who do not use helmets with a quality standard label. This is evidenced by Roihanah (2013). Her survey that was conducted at a university in Indonesia showed that 58% of students use a helmet when driving on a motorcycle. However, not all helmets they use are SNI-label helmets. In addition to that study, the mass media in Indonesia also highlighted the large number of motorcycle users who do not use helmets with a quality standard label. This condition indicates the need to increase motorcycle users' intention to use helmets with a quality standard label.

In the literature, it is well known that in order to influence the behavioral intention of a user of the mode of transportation, an effective strategy should be prepared in accordance with the psychological factors that influence the intention. Given that, it becomes important to understand the psychological processes and factors that influence a motorcycle user's intention to use helmet with a national quality standard label.

1.1. Research Gap

Helmet-related studies have been widely conducted. However, the majority of the studies were conducted within the technical specification area of the helmet. For example, Halimi, Hassen, and Sakli (2012) designed and developed a new comfort liner for a motorcycle helmet that enhances breathability and evaporative transfer of heat in a helmet, so the helmet becomes more comfortable to use. Taking into account the aspect of ergonomics, Mithun, Umesh and Pathan (2013) developed motorcycle helmet designs to enhance thermal comfort, visibility, and safety. In addition to those studies, researches related to the technical specifications of the helmet were also carried out by

Tinard et al. (2011); Ellis, Bertoloni, and Thompson (2000); Ramirez and Gupta (2018); Khosroshahi, Tsampas and Galvanetto (2018); Pinnoji et al. (2010); Shuaeib et al. (2007); Mills and Gilchrist (1991); Raju, Banthia, and Nassar (2009); Blanco, Cernicchi, and Galvanetto (2014), and Pinnoji, Haider, and Mahajan (2008).

Meanwhile, researches on helmet use behavior are still very limited. Among the studies related to helmet use behavior, the majority focuses on motor vehicle users' willingness to use a helmet. Ackaah and Afukaar (2010) conducted a cross-sectional observational study of the use of a helmet by motorcycle users at 10 locations in Tamale Metropolis, Ghana. The results showed that only 34.2% of riders and 1.9% of passengers are using helmets. Among the helmet users, 49.6% are elderly, 34.3% are adults, and 21.9% are young. Lack of knowledge about helmet benefits for safety and low law enforcement is likely to be the cause of the low use of helmets by motorcycle users in Tamale Metropolis, Ghana (Ackaah and Afukaar, 2010). Furthermore, young riders who use helmets are fewer than older riders because young riders usually perceive less risk in driving than older riders (Ackaah and Afukaar, 2010).

Hung, Stevenson, and Ivers (2006) investigated the same thing with Ackaah and Afukaar (2010) in Hai Duong province, Vietnam. The results of the investigation showed only 34.6% of motorcycle riders and 18.9% of motorcycle passengers who use helmets. In addition, their results also showed that the use of helmets by riders is different for each type of road. The use of helmets is higher in the roads that require motorcycle users to use a helmet.

Conrad et al. (1996) conducted road observations and interviews with motorcycle users in Yogyakarta, Indonesia. The results showed that only 89% of motorcycle riders and 20% of motorcycle passengers use helmets. The number is reduced during the night where there is no police supervision. Several factors, such as discomfort and the absence of police surveillance, cause them not to use helmets.

Referring to the previous explanation, it can be seen that there is a lack of research related to the intention of motorcycle users in using helmets with a quality standard label. Thus, research to understand the psychological process and the factors that affect a motorcycle user's intention to use helmets with a national quality standard label needs to be performed.

1.2. Research Objectives

To fill the gaps in the literature, this study aims to develop and test a model of motorcycle users' intention to use helmets with a quality standard label in Indonesia. The proposed model integrates the hierarchy of effect theory and the information signaling theory. Both theories are selected for the following reasons:

1. The hierarchy of effect theory explains the phases of the customer psychological processes in purchasing a particular product or brand and the effect of advertisement on the process. This theory can be used to explain the process of motorcycle users' intention to use helmets with a quality standard label and the importance of quality label marketing on helmets.
2. The information signaling theory focuses on the characteristics of product signals that may affect the customer's psychology, such as perceived risk. It is helpful to explain what quality label marketing construct that can reduce the customer's perceived risk.
3. Integration of the two theories will provide a more comprehensive picture of the formation process of customers' intention and the factors that influence it.
4. Both theories are widely used in consumer behavior studies.

2. Conceptual model and hypotheses

In the existing literature, intention to use is one of the most discussed topics. Some researchers define intention to use based on the definition of behavioral intention presented by Fishbein and Ajzen (1975), namely "the strength of one's intention to perform a specified behavior". For example, Rahman, Jamaludin, and Mahmud (2011) defined the intention to use digital library as "the strength of digital library users' intensity to use digital library for obtaining digital information resource for his/her study/research". In connection with the website, Lin and Lu (2000) stated that the intention to use a website shows the extent to which users want to reuse the website in the future. In other literature, Brezavšček, Šparl, and Žnidaršič (2017) defined behavioral intention as the extent to which a person

consciously plans to perform or not to perform certain behaviors in the future. Based on that definition, then Brezavšček, Šparl, and Žnidaršič (2017) defined intention to use statistical software as a degree that indicates the extent to which a person is planning consciously to use statistical software in the future. Based on those definitions, this study defines the intention to use as the level of a person's willingness to consciously use something in the future. Thus the intention to use helmets with a quality standard label is the level of a person's willingness to consciously use helmets with a quality standard label in the future.

In the literature, intention to use is influenced by various factors. This study integrates the hierarchy of effect framework and the information signaling framework to explain the intention to use helmets with a quality standard label. Figure 1 shows the conceptual model of this study

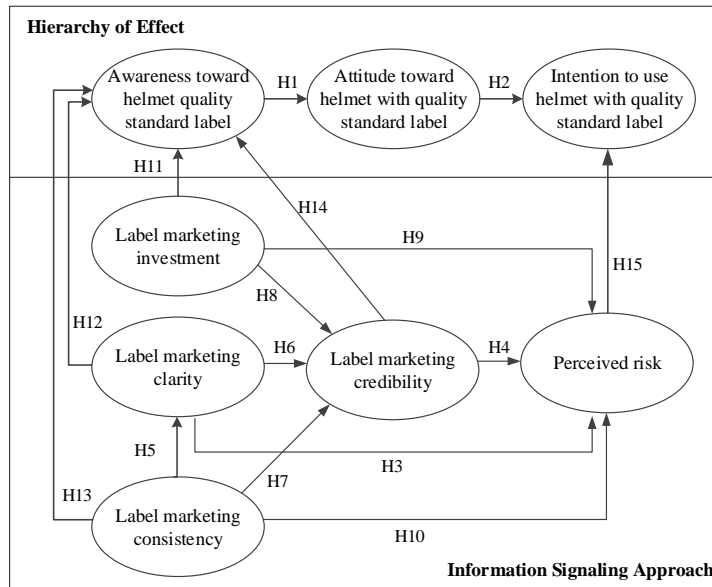


Figure 1. Conceptual model

2.1. Hierarchy of Effect Framework

The Hierarchy of Effect (HOE) framework was introduced by Robert J. Lavidge and Gary A. Steiner in 1961 to measure the effectiveness of an advertisement. The HOE framework describes a person's psychological stages from being initially unaware toward a product or brand until he or she finally purchases the product or brand. Figure 2 shows the HOE framework. At first, a person is not aware toward a particular product or brand. Then, the ad makes the person aware toward the product or brand. Once aware, the person starts to learn more about the product or brand by collecting information about the product or brand. The collected information then becomes the knowledge of the product or brand that will form the likes or dislikes of the product or brand. In the end, the likes or dislikes form a preference. Once the preference is established, then the person will convince himself or herself of the benefits of purchasing the product or brand. Once convinced, then he or she will make purchases of the product or brand.

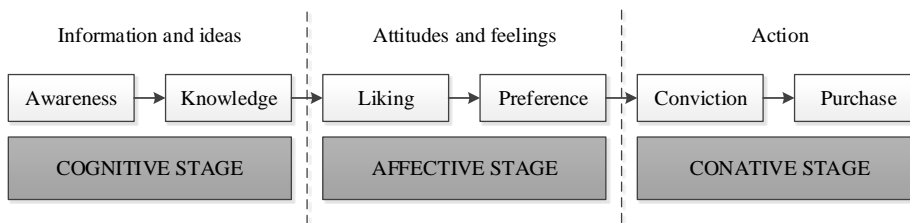


Figure 2. HOE Framework
 Source: adapted from Hutter et al. (2013)

In the context of the motorcycle users' intention to use helmets with a quality standard label, we argued that the process of motorcycle users' intention also occurs as described in the HOE framework. Marketing communications related to a quality standard label on helmet by related parties make motorcycle users aware toward the label. Following the definition of awareness by Percy and Rosister (1992), the awareness here meant motorcycle users are not only able to identify and recognize the quality standard label on helmet, but also know its characteristics, including its benefits. In other words, the awareness toward a helmet quality standard label also shows the motorcycle user's knowledge about the helmet quality standard label. Awareness toward helmet quality standard label will then form the attitude toward helmet with the quality standard label (person's overall and general evaluation on helmet with the quality standard label, which is indicated by positive or negative feelings). This is supported by studies from Chen (2013) and Percy and Rosister (1992). They proved that consumers' awareness affects consumers' attitude. Motorcycle users who are aware toward the helmet quality standard label know the characteristics of the label and the knowledge makes them have positive or negative feelings on the helmet with the label. In contrast, motorcycle users who are not aware toward the helmet quality standard label may not have positive or negative feelings on the helmet with the label. Furthermore, the attitude of motorcycle users toward helmet with the quality standard label will affect their intention to consciously use helmet with the quality standard label. The more positive a person's attitude toward helmets with the quality standard label, the more the person wants to use the helmets. Based on the above description, the hypotheses are formulated as follows:

- H1: Awareness toward helmet quality standard label affects attitude toward helmet with quality standard label positively
- H2: Attitude toward helmet with quality standard label affects intention to use helmet with quality standard label positively

2.2. Information Signaling Framework

Information signaling framework was introduced to explain brand equity. Brand equity is "the added value endowed to products and services" (Park and Srinivasan, 1994). Erdem and Swait (1998) said that the brand is a product signal because the brand provides product-related information to consumers. Furthermore, Erdem and Swait (1998) stated that the four factors that are the marketing mix of the signals, namely brand investment, brand consistency, brand clarity, and brand credibility affect brand equity positively. The clearer and more credible a brand, the lower perceived risk, and the higher perceived quality and information cost saved (Erdem and Swait, 1998). Brand clarity is positively affected by brand consistency. Brand credibility is positively affected by brand consistency, brand investment, and brand clarity. Furthermore, low perceived risk and high perceived quality and information costs saved increase the expected utility (Erdem and Swait, 1998). The increase in expected utility is considered to be the added value of the product provided by the brand (brand equity). For more details, the information signaling framework is shown in Figure 3 and the definitions of the constructs in the framework can be seen in Table 1.

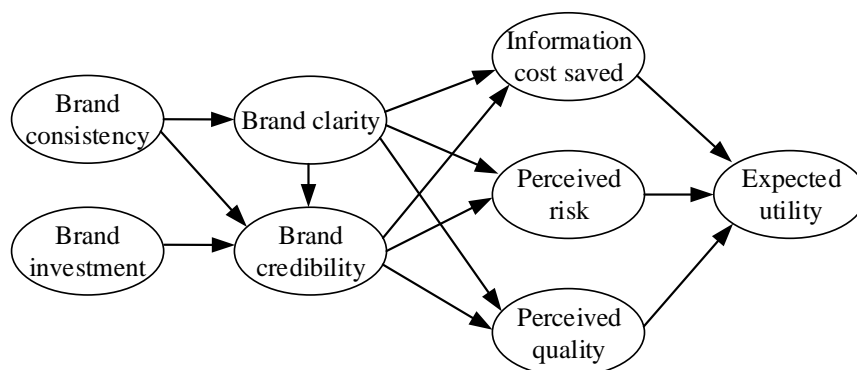


Figure 3. Information Signaling Framework
Source: Adapted from Erdem and Swait (1998)

Table 1. Definition of Constructs in Information Signaling Framework

Construct	Definition
Brand investment	The amount of resources spent or efforts made by firms on their brand to demonstrate a commitment to their brand
Brand clarity	The absence of ambiguity in the information conveyed by the brand
Brand consistency	The consistency of the information conveyed by the brand
Brand credibility	The degree of truth and reliability of information about the brand
Information cost saved	Costs incurred by customers to obtain information related to the brand
Perceived quality	The customer's perception of the brand's ability to meet expectations
Expected utility	The expected value associated with brand utility
Perceived risk	Possible losses felt by consumers as a result of uncertainty

Source: Taken from Erdem and Swait (1998)

A quality standard label is a label on the product or product packaging used to inform the customers that the product or process for producing the product meets certain standard and has been audited by an independent third party (Velčovska and Marhounova, 2005 as cited in VelčoVská and Sadílek, 2014). Thus, the quality standard label has the same function as the brand, that is, as a product signal. Therefore, the influence relationship between constructs that occurs in the information signaling framework can be used to explain the effect of marketing mix of the helmet quality standard label on perceived risk of motorcycle users related to purchasing helmet with the quality standard label.

For the context of the helmet quality standard label, perceived risk of motorcycle users on purchasing helmet with a quality standard label may also be influenced by the clarity and credibility of the information presented in the marketing of the label (label marketing clarity and label marketing credibility). The clearer and more credible the information conveyed, the lower the perceived risk of motorcycle users. Clear information makes quality claims delivered can be captured by motorcycle users. Well-captured claims will subsequently affect motorcycle users' assessment of the losses they may encounter if they buy helmets with the quality standard label. The more motorcycle users clearly understand the claims of superiority in quality delivered by the marketer, the lower the perceived risk of motorcycle users. After knowing and understanding the quality claims conveyed by marketers related to the helmet quality standard label, the motorcycle users will be less perceived risk in purchasing helmets with the quality standard label if they feel that the quality claims delivered are credible. Baek and King (2011) have proven that the more credible a brand, the lower the perceived risk of the customer.

Furthermore, the clarity of the information conveyed in the marketing of the helmet quality standard label (label marketing clarity) may be influenced by the information consistency (label marketing consistency). The more consistent the information is submitted, the more clearly the claims conveyed are understood by motorcycle users. On the other hand, the credibility of the information conveyed in the marketing of helmet quality standard label (label marketing credibility) may be affected by the consistency and clarity of that information (label marketing consistency and label marketing clarity) as well as the marketer-issued investments to market quality standard label (label marketing investment). The more consistent the information is delivered, the more convinced the motorcycle user that the information delivered is true and reliable (credible). For example, if a marketer keeps repeating that helmets with the quality standard label are helmets that can protect the head from a variety of impacts and the claim is unchanged, it will make motorcycle users more confident that helmets with the quality standard label can indeed protect the head from various impacts. In addition to being influenced by the consistency of information (label marketing consistency), the credibility of information in the marketing of the quality standard label is also possibly influenced by the clarity of the information (label marketing clarity). The more clearly and vividly (not ambiguous, not faint, nothing is covered up) information is conveyed, the more convinced the motorcycle users that the information conveyed is true (credible). This thinking is supported by Montes and Nicolay (2016). Their study proved that the clarity of communication of a central bank influences the credibility of monetary policy positively. The marketer's investment to market the quality standard label on helmet (label marketing investment) is also suspected to be a factor affecting the credibility of information in the point of view of motorcycle users (label marketing credibility). The amount of investment made to market the quality standard label on helmet shows the

marketer's commitment to the label. The greater the investment made to market the quality standard label, the more it shows that the claims made in marketing are true (credible). On the basis of existing theoretical and empirical pieces of evidence, the next hypotheses of this research are:

- H3: Label marketing clarity affects perceived risk negatively
- H4: Label marketing credibility affects perceived risk negatively
- H5: Label marketing consistency affects label marketing clarity positively
- H6: Label marketing clarity affects label marketing credibility positively
- H7: Label marketing consistency affects label marketing credibility positively
- H8: Label marketing investment affects label marketing credibility positively

Just as label marketing clarity and label marketing credibility, the direct influence of label marketing investment and label marketing consistency on perceived risk are also possible. This is based on the idea that the greater investment the company spends on a product indicates the company's commitment to deliver the product that match customers' expectations and minimize the losses customers might receive by purchasing the product (customer perceived risk). This is because the company does not want to fail by delivering a product that does not meet customers' expectations and harm customers. For the context of the helmet quality standard label, the greater the investment made by marketers in label marketing, the more it shows the importance of a quality standard on helmets and helmets with the quality standard label (helmets that meet a quality standard) to protect motorcycle users. Furthermore, the more consistent information conveyed in the marketing of the quality standard label on helmet (label marketing consistency), the more it makes motorcycle users confident of the claims delivered (i.e., the helmets with a quality standard label are helmets that have been tested to provide adequate protection while driving). Thus, the risk that customers might receive (e.g., helmet easily broke, safety straps easily loose, etc.) for purchasing helmets with a quality standard label is low. Based on the above explanation, the next hypotheses of this research are:

- H9: Label marketing investment affects perceived risk negatively
- H10: Label marketing consistency affects perceived risk negatively

2.3. Hierarchy of effect and signaling information framework

The Hierarchy of Effect (HOE) framework describes the formation process of customer intention. The information signaling framework describes the characteristics of a marketing mix of product signals (e.g., advertisements) that can affect the customer's psychology. The integration of the two frameworks provides a more comprehensive picture of the formation process of customer's intention and the factors that affect it. Figure 1 shows the integration of the Hierarchy of Effects (HOE) framework and the information signaling framework.

In the Hierarchy of Effects (HOE) framework, it is said that advertisement makes customers aware toward the product or brand. For the context of the quality standard label on helmet, quality label marketing made by marketers may also affect motorcycle users' awareness toward the helmet quality standard label. Therefore, this study developed hypotheses as follows:

- H11: Label marketing investment affects awareness toward helmet quality standard label positively
- H12: Label marketing clarity affects awareness toward helmet quality standard label positively
- H13: Label marketing consistency affects awareness toward helmet quality standard label positively
- H14: Label marketing credibility affects awareness toward helmet quality standard label positively

Signaling information theory says that perceived risk affects the expected utility. The lower perceived risk, the higher the expected utility (Erdem and Swait, 1998). Furthermore, high expected utility motivates customers to make purchases. Based on the theory, for the helmet quality standard label context, it can be said that perceived risk also affects the intention to use helmets with the quality standard label. Research from Marafon et al. (2018), Chen

(2013), and Bhukya and Singh (2015) also prove it. They found that perceived risk affects intention to use. Therefore, the final hypothesis of this study is:

H15: Perceived risk affects intention to use helmet with quality standard label negatively

3. Research methodology

This study used a quantitative research methodology. This study conducted a survey to collect data. A self-administered questionnaire was utilized in this survey. The survey was conducted in Jakarta, Indonesia. We selected Jakarta due to several reasons. First, Jakarta is the capital city and according to data from Traffic Corps of the Republic of Indonesia, in 2015, Jakarta is the province in Indonesia with the largest number of motorcycles (13.9 million). 73.92% of traffic in Jakarta is dominated by motorcycles (BPS DKI Jakarta, 2017). Secondly, Jakarta has a high number of motorcycle accidents in Indonesia

3.1. Sample

Respondents of this study were 665 motorcycle users in Jakarta who purchased helmets less than 1 year before the survey was conducted. The data collection technique used was convenience sampling because the characteristics of helmet users in Jakarta were unknown and no information was available about it. In addition, quoted from Park and Sullivan (2009), this technique is acceptable used in studies that tested a theoretical model (Calder et al., 1981). Table 2 shows the respondent's demographic profile.

Table 2. Demographic Profile of Respondents

Variable	Categories	%	Variable	Categories	%
Gender	Male	62.59	Education	No school education	0.60
	Female	37.41		Not graduated from elementary school	1.06
Age	≤ 20	31.52		Elementary school	4.53
	21 - 30	29.86		Junior high school	15.41
	31 - 40	20.81		Senior high school	63.90
	41 - 50	12.22		Diploma I	0.45
	≥ 51	5.58		Diploma III	3.62
Occupation	Unemployment	18.70		Bachelor degree	9.52
	Labor	10.56		Master degree	0.91
	Student	30.47		Marital status	Single
	Civil servants	2.71	Married		43.38
	TNI / POLRI	1.66	Widow/Widower		1.83
	Private sector worker	23.83	Habits in using a helmet	Always use a helmet when driving on a motorcycle	70.27
	Entrepreneur	10.71		Using a helmet if driving to a certain place only	29.73
Others	1.36				

3.2. Variable and measures

This research involved eight variables, namely awareness toward helmet quality standard label, attitude toward helmet with quality standard label, intention to use helmet with quality standard label, label marketing investment, label marketing clarity, label marketing consistency, label marketing credibility, and perceived risk. Indicators for

the eight variables can be seen in Table 3. All indicators were obtained and adapted from literature. This was done to ensure content validity. Each variable has at least 4 indicators. This meets the requirements of data analysis with Structural Equation Modeling (SEM) used in this study (Diamantopoulos et al., 2012). A 5-point Likert scale was used to measure indicators. Point 1 shows that respondents were "strongly disagree" and point 5 shows "strongly agree" with the statements.

Table 3. Research Variables and Indicators

Variable	Indicator	Adapted from
Awareness toward helmet quality standard label	1. I have heard of the SNI label on helmet	Aaker (1996), Sasmita et al. (2014), Tong et al. (2009)
	2. I know the use of the SNI label on helmet	
	3. I have a certain view of the SNI label helmet	
	4. I can quickly recognize the symbol or logo of the SNI label on helmet	
	5. I can remember some of the characteristics of the SNI label on helmet quickly	
	6. I can quickly recognize the SNI label on helmet even though there are other labels on helmet	
Attitude toward helmet with quality standard label	1. Buying an SNI-labeled helmet makes me feel calm	Rzem and Debabi (2012), Fishbein and Ajzen (1975), Amaro and Duarte (2015), Lassar et al. (1995), Tong et al. (2009)
	2. I like when the helmet sold is an SNI-labeled helmet	
	3. When I buy an SNI-labeled helmet, I always feel that I have made the right purchase	
	4. I feel happy to have an SNI-labeled helmet	
	5. I have positive feelings about the SNI label on helmet	
	6. I appreciate people who use SNI-labeled helmets	
Intention to use helmet with quality standard label	1. When buying a helmet, usually I will look for an SNI-labeled helmet	Cooke and Papadaki (2014), Verbeke et al. (2012), Tong et al. (2009), Gatti et al. (2012), Bao et al. (2005), Velčovská et al. (2012)
	2. One of my considerations when purchasing a helmet is the presence of an SNI label on helmet	
	3. If there are two helmets have the same features, I will choose an SNI-labeled helmet	
	4. When purchasing a helmet, I have a strong intention to buy an SNI-labeled helmet	
	5. When purchasing a helmet, I have a high tendency to buy an SNI-labeled helmet	
	6. When purchasing a helmet, I want to buy an SNI-labeled helmet	
	7. I am willing to pay more for an SNI-labeled helmet	
	8. I am interested in information on SNI label on helmet products	
	9. I would recommend my friends to buy SNI-labeled helmets	
Label marketing investment	1. Promotion efforts on the importance of SNI label on helmets are conducted intensively	Erdem and Swait (1998)
	2. Promotion efforts on the importance of SNI label on helmets reach many motorcycle user communities	
	3. Promotion efforts on the importance of SNI label on helmets are done using various information media	
	4. Promotion efforts on the importance of SNI label on helmets are presented to the public at large	
Label Marketing Clarity	1. The disseminated information related to the SNI label on helmet conveys clearly the function of the SNI label on helmet	Erdem and Swait (1998)
	2. I understand the image of SNI label that wanted to be formed from the information disseminated	

(continued)

Table 3. Research Variables and Indicators

Variable	Indicator	Adapted from
Label Marketing Clarity	3. Information disseminated on the SNI label on helmet conveys that the helmets with the SNI label are helmets that take into account the security aspect	Erdem and Swait (1998)
	4. Information disseminated on the SNI label on helmet conveys that the helmets with the SNI label are helmets that concern the safety aspect	
	5. Information disseminated on the SNI label on helmet conveys that the helmets with the SNI label are helmets that take into account the health aspect	
	6. Information disseminated on the SNI label on helmet conveys that the helmets with the SNI label are helmets that concern the issue of environmental friendliness	
Label marketing consistency	1. The image of the SNI label on helmet conveyed in various information media is consistent	Erdem and Swait (1998)
	2. The function of the SNI label on helmet conveyed in various information media is consistent	
	3. The information conveyed related to the SNI label on helmet depicts the image of the label that wants to be formed	
	4. The information conveyed related to the SNI label on helmet in accordance with one another	
Label Marketing Credibility	1. The SNI label on helmet gives what is promised in the advertisement about the SNI label	Erdem and Swait (1998)
	2. Information presented in advertisements related to the SNI label on helmets can be trusted	
	3. My experience with SNI-labeled helmets makes me believe with the information presented in the advertisement	
	4. The advertisements of the SNI label on helmet do not deceive me	
Perceived Risk	1. In general, I am sure that I will experience a certain risk if I buy an SNI-labeled helmet	Laroche et al. (2003)
	2. In general, I am sure that I will make a mistake if I buy an SNI-labeled helmet	
	3. I have a feeling that buying an SNI-labeled helmet will cause much trouble for me	
	4. I feel indecisive when buying an SNI-labeled helmet	

3.3. Data analysis

Data analysis consisted of respondent demographic profile analysis, measurement model analysis, and structural model analysis. The measurement model analysis aims to find out how well measurement model measures what is measured (Barret, 2007). This analysis consists of goodness of fit analysis, validity analysis, and reliability analysis. Goodness of fit and construct validity testing were performed using Confirmatory Factor Analysis-Structural Equation Modeling (CFA-SEM). LISREL software was used for CFA-SEM. The model is said to be good if it meets the criteria of goodness of fit in Table 4. If factor loading value for each indicator of the variables ≥ 0.5 and statistically significant as well as the value of composite reliability (CR) for each variable > 0.6 then the model is said to meet construct validity (Hair et al., 2010). Model reliability was assessed using the Cronbach Alpha coefficient (Hair et al., 2010; Tari et al., 2007). The model is said to be reliable if the Cronbach Alpha coefficient for all variables > 0.6 (Sekaran and Bougie, 2010). SPSS software was used to perform reliability testing.

Fotopoulos and Psomas (2010) stated that “structural models differ from measurement models in that emphasis moves from the relationships between latent constructs and measured variables to the nature and magnitude of the

relationships between constructs (Hair et al., 2005)". Structural model analysis aims to determine the magnitude and nature of the relationships between constructs. In other words, the analysis is done to test the research hypotheses whether accepted statistically or not (Anderson and Gerbing, 1988).

Structural model analysis includes goodness of fit and hypotheses testing. Both were done using SEM. The criteria used in the goodness of fit were the same as those used in the measurement model analysis contained in Table 4. Furthermore, for hypotheses testing, the hypotheses were accepted if t value > 1.96 ($\alpha = 0.05$).

Table 4. Goodness of Fit Criteria

Goodness of Fit Criteria	Threshold (Source)
Chi-Square/df	< 5 (Chi-Square/df) (Wheaton et al., 1977; Cheng, Lam, and Yeung, 2006; Hooper, Coughlan, and Mullen, 2008)
NFI	> 0.9 (Hair et al., 2010)
NNFI	> 0.9 (Hair et al., 2010)
CFI	> 0.9 (Hair et al., 2010)
IFI	> 0.9 (Hair et al., 2010)
RFI	> 0.9 (Hair et al., 2010)
RMSEA	≤ 0.08 (MacCallum, Browne, and Sugawara, 1996; Hooper, Coughlan, and Mullen, 2008)

4. Result and discussion

According to the research method, data analysis was done by two stages including analysis of measurement model and analysis of structural model and hypotheses.

4.1. Measurement model analysis result

The measurement model analysis consisted of goodness of fit, validity analysis, and reliability analysis. The results of goodness of fit model testing are shown in Table 5 and validity as well as reliability testing are shown in Table 6. Based on the result of goodness of fit testing shown in Table 5, the measurement model meets all goodness of fit criteria. This is indicated by the measurement results that are below the thresholds. Thus the measurement model proposed in this study is good. The measurement model is also said to meet construct validity due to factor loading value for each indicator of the variables ≥ 0.5 and statistically significant as well as the composite reliability (CR) value for each variable > 0.6 (Table 6). Finally, the reliability testing results in Table 6 show that all variables have Cronbach Alpha coefficient > 0.6 so that the measurement model is reliable.

Table 5. The Result of Goodness of Fit Testing

Goodness of Fit Criteria	Threshold (Source)	Measurement Result
Chi-Square/df	< 5 (Chi-Square/df) (Wheaton et al., 1977; Cheng, Lam, and Yeung, 2006; Hooper, Coughlan, and Mullen, 2008)	$2369.16/832 = 2.85$
NFI	> 0.9 (Hair et al., 2010)	0.97
NNFI	> 0.9 (Hair et al., 2010)	0.98
CFI	> 0.9 (Hair et al., 2010)	0.98
IFI	> 0.9 (Hair et al., 2010)	0.98
RFI	> 0.9 (Hair et al., 2010)	0.97
RMSEA	≤ 0.08 (MacCallum, Browne, and Sugawara, 1996; Hooper, Coughlan, and Mullen, 2008)	0.05

Table 6. The Result of Construct Validity and Reliability Testing

Variables and Indicators	Factor Loading (p-value)	Error Variance	Cronbach Alpha Coefficient	CR
Awareness toward helmet quality standard label (Aw)			0.809	0.807
Aw1	0.59	0.65		
Aw2	0.60	0.63		
Aw3	0.57	0.68		
Aw4	0.67	0.55		
Aw5	0.69	0.53		
Aw6	0.72	0.48		
Attitude toward helmet with quality standard label (Att)			0.821	0.822
Att1	0.68	0.54		
Att2	0.65	0.58		
Att3	0.61	0.62		
Att4	0.70	0.50		
Att5	0.67	0.55		
Att6	0.64	0.59		
Intention to use helmet with quality standard label (Int)			0.864	0.864
Int1	0.60	0.63		
Int2	0.61	0.63		
Int3	0.65	0.58		
Int4	0.67	0.55		
Int5	0.64	0.59		
Int6	0.61	0.63		
Int7	0.65	0.58		
Int8	0.69	0.52		
Int9	0.66	0.57		
Label marketing investment (Inv)			0.817	0.818
Inv1	0.77	0.41		
Inv2	0.75	0.44		
Inv3	0.72	0.48		
Inv4	0.67	0.55		
Label marketing clarity (Cla)			0.800	0.803
Cla1	0.71	0.50		
Cla2	0.66	0.57		
Cla3	0.54	0.71		
Cla4	0.61	0.62		
Cla5	0.65	0.58		
Cla6	0.64	0.59		
Label marketing consistency (Cons)			0.792	0.795
Cons1	0.75	0.44		
Cons2	0.75	0.44		
Cons3	0.66	0.57		
Cons4	0.65	0.58		
Label marketing credibility (Cred)			0.806	0.806
Cred1	0.76	0.42		
Cred2	0.73	0.47		

(continued)

Table 6. The Result of Construct Validity and Reliability Testing

Variables and Indicators	Factor Loading (p-value)	Error Variance	Cronbach Alpha Coefficient	CR
Cred3	0.70	0.51		
Cred4	0.66	0.56		
Perceived Risk (PRisk)			0.888	0.891
Prisk1	0.79	0.38		
Prisk2	0.84	0.30		
Prisk3	0.83	0.31		
Prisk4	0.82	0.33		

4.2. Structural model analysis and hypotheses result

Structural model analysis included goodness of fit and hypotheses testing. The results of goodness of fit and hypotheses testing are shown in Table 7 and Table 8 respectively. Similar to the measurement model, the structural model in this study is also good. This is indicated by the measurement results that are below the thresholds of all goodness of fit criteria (Table 7). Further, the results of the hypotheses testing in Table 8 show that there are nine accepted hypotheses (H1, H2, H5, H6, H8, H9, H11, H12, H15) and six rejected hypotheses (H3, H4, H7, H10, H13, H14).

Table 7. The Result of Goodness of Fit Testing

Goodness of Fit Criteria	Threshold (Source)	Measurement Result
Chi-Square/df	< 5 (Chi-Square/df) (Wheaton et al., 1977; Cheng, Lam, and Yeung, 2006; Hooper, Coughlan, and Mullen, 2008)	2369.16/832 = 2.85
NFI	> 0.9 (Hair et al., 2010)	0.97
NNFI	> 0.9 (Hair et al., 2010)	0.98
CFI	> 0.9 (Hair et al., 2010)	0.98
IFI	> 0.9 (Hair et al., 2010)	0.98
RFI	> 0.9 (Hair et al., 2010)	0.96
RMSEA	≤ 0.08 (MacCallum, Browne, and Sugawara, 1996; Hooper, Coughlan, and Mullen, 2008)	0.05

Table 8. The Results of Hypotheses Testing

Hypothesis	Effect of Latent Variable	Beta	t-value	Result
H1	Awareness → Attitude	0.87	12.72	Supported
H2	Attitude → Intention to use	0.83	12.83	Supported
H3	Label marketing clarity → Perceived risk	-0.21	-0.89	Rejected
H4	Label marketing credibility → Perceived risk	0.00	0.00	Rejected
H5	Label marketing consistency → Label marketing clarity	0.93	18.90	Supported
H6	Label marketing clarity → Label marketing credibility	0.74	3.84	Supported
H7	Label marketing consistency → Label marketing credibility	-0.18	-0.79	Rejected
H8	Label marketing investment → Label marketing credibility	0.37	4.33	Supported
H9	Label marketing investment → Perceived risk	-0.27	-2.19	Supported
H10	Label marketing consistency → Perceived risk	-0.11	-0.45	Rejected
H11	Label marketing investment → Awareness	0.21	2.03	Supported

(continued)

Table 8. The Results of Hypotheses Testing

Hypothesis	Effect of Latent Variable	Beta	t-value	Result
H12	Label marketing clarity → Awareness	0.95	3.54	Supported
H13	Label marketing consistency → Awareness	-0.22	-0.90	Rejected
H14	Label marketing credibility → Awareness	-0.04	-0.35	Rejected
H15	Perceived risk → Intention to use	-0.12	-3.79	Supported

The first hypothesis in this study stated that awareness toward helmet quality standard label affects attitude toward helmet with quality standard label positively. The research results showed that this hypothesis is accepted. In the context of this research, it means that the higher awareness toward the SNI label on helmet of motorcycle helmet users, the better their attitude toward the SNI-labeled helmets.

The second hypothesis in this study stated that attitude toward helmet with quality standard label affects the intention to use helmet with quality standard label positively. The research results proved that this hypothesis is accepted. This indicated that for the context of SNI-labeled helmets, the motorcycle users' intention to use SNI-labeled helmets is affected by their attitude towards the helmet. The better their attitude toward the SNI-labeled helmets, the stronger their intention to use the SNI-labeled helmets.

The third hypothesis in this study stated that label marketing clarity affects perceived risk negatively. The research results showed that this hypothesis is rejected. Thus, it can be said that for the context of SNI-labeled helmets, the clarity of information provided by marketers in marketing or promoting the SNI label on helmet does not guarantee the low perceived risk of motorcycle users in buying SNI-labeled helmets. The clearer the information provided does not necessarily make the perceived risk of motorcycle users getting lower.

The fourth hypothesis in this study stated that the label marketing credibility affects perceived risk negatively. The results rejected the hypothesis. This showed that the credibility of information delivered by marketers in marketing or promoting the SNI label on helmet does not guarantee the low perceived risk of motorcycle users in buying SNI-labeled helmets. The more credible the information provided does not necessarily make the perceived risk of motorcycle users getting lower.

The fifth hypothesis in this study stated that the label marketing consistency affects label marketing clarity positively. The results showed that the hypothesis is proven. Therefore, for the context of the SNI label on helmet, the more consistent information delivered by marketers in marketing or promoting the SNI label, the clearer the information is understood by motorcycle users.

The sixth hypothesis in this study stated that label marketing clarity affects label marketing credibility positively. The research results showed that the hypothesis is accepted. In other words, for the context of the SNI label on helmet, the clearer the information delivered by marketers in marketing or promoting the label, the more credible the information is in the point of view of motorcycle users.

The seventh hypothesis in this study stated that the label marketing consistency affects label marketing credibility positively. The research results showed that this hypothesis is rejected. This means that the more consistent information delivered by marketers in marketing or promoting the SNI label on helmet does not guarantee that information is credible in the point of view of motorcycle users.

The eighth hypothesis in this study stated that label marketing investment affects label marketing credibility positively. Based on the research results, the hypothesis is accepted. Thus it can be said that in the point of view of motorcycle users, the greater the investment made by marketers in marketing or promoting the SNI label on helmet, the more credible information delivered in the marketing or promotion efforts that is perceived by motorcycle helmet users.

The ninth hypothesis in this study stated that label marketing investment affects perceived risk negatively. This hypothesis is proven. In other words, in the point of view of motorcycle users, the greater investment made by marketers in marketing or promoting the SNI label on helmet, the lower perceived risk of motorcycle users in purchasing SNI-labeled helmets.

The tenth hypothesis in this study stated that label marketing consistency affects perceived risk negatively. The research results showed that this hypothesis is rejected. Thus, it can be said that for the context of this research, the more consistent information submitted by marketers in marketing or promoting the SNI label on helmet does not guarantee perceived risk of motorcycle users in purchasing SNI-labeled helmets are lower.

The eleventh hypothesis in this study stated that label marketing investment affects awareness toward helmet quality standard label positively. The research results showed that this hypothesis is accepted. Therefore, it can be said that the greater the investment made by marketers in marketing or promoting the SNI label on helmet, the higher awareness toward the label of motorcycle helmet users.

The twelfth hypothesis in this study stated that label marketing clarity affects awareness toward helmet quality standard label positively. The research found that the hypothesis is accepted. This means the clearer information delivered by marketers in marketing or promoting the SNI label on helmet, the higher motorcycle users' awareness toward the label.

The thirteenth hypothesis in this study stated that label marketing consistency affects awareness toward helmet quality standard label positively. The hypotheses testing showed that this hypothesis is not supported. In other words, for the context of the SNI label on helmet, the more consistent information delivered by marketers in marketing or promoting the SNI label on helmet, may not necessarily make the motorcycle users' awareness toward the label increases.

The fourteenth hypothesis in this study stated that label marketing credibility affects awareness toward helmet quality standard label positively. This hypothesis is rejected. This means that the more credible information delivered by marketers in marketing or promoting the SNI label on helmet, may not necessarily make the motorcycle users more aware toward the label.

The fifteenth hypothesis in this study stated that perceived risk affects the intention to use helmet with quality standard label negatively. The results showed that the hypothesis is accepted. Thus, the lower perceived risk of motorcycle users in purchasing SNI-labeled helmets, the higher the intention of motorcycle users to use SNI-labeled helmets.

4.3. Discussion

The important role of helmet has been highlighted in the existing literature. Many researchers have studied helmet. However, most of the studies focus on helmet technical specification. Meanwhile, there is a lack of research on intention to use helmet with a quality standard label.

The first contribution of this research is developing a theoretical model that can be used to understand intention to use helmet with a quality standard label. The model integrates the hierarchy of effect theory and the information signaling theory. This research results showed that the proposed model has goodness of fit, validity, and reliability. Thus, the model can be used to understand intention to use helmet with a quality standard label.

The study also revealed that intention to use helmet with a quality standard label is significantly affected by attitude toward helmet with a quality standard label and perceived risk. Perceived risk is significantly affected by label marketing investment. Attitude is significantly affected by awareness. Awareness is significantly affected by label marketing investment and clarity.

The results of study can be used by the government as a party concerned with the SNI label to determine the right strategies for increasing motorcycle users' intention to use SNI-labeled helmets. Based on the results of this study, the government should improve the positive attitude of motorcycle users toward SNI-labeled helmets and reduce their perceived risk in purchasing SNI-labeled helmets. To improve the positive attitude of motorcycle users, it needs to build motorcycle users' awareness toward the SNI label on helmet. The thing that can be done is to introduce the SNI label and its characteristics to the public widely and intensively by using various media. Large investment in marketing will also help reduce perceived risk associated with the purchase of SNI-labeled helmets. Marketing that reaches the public at large, intensive, and uses a variety of media, psychologically will increase the public confidence that the product or brand that is marketed is good and not harmful. For the context of the SNI label on helmet, a large investment in the label marketing can increase public confidence that SNI-labeled helmets are qualified helmets and not harmful. In addition, the information submitted during marketing or promoting the SNI label must be clear so that the claim submitted can be captured by the public. To clarify information received by the public, the government must also market or promote the SNI label consistently either from the claims/content or marketing activities or promotion itself.

5. Conclusion and limitation

This study has proposed a model of motorcycle users' intention to use helmet with a quality standard label in Indonesia. The proposed model integrates the hierarchy of effect theory and the information signaling theory. The study results showed that the proposed model has goodness of fit, validity, and reliability. Furthermore, the study also revealed that intention to use helmet with a quality standard label is significantly affected by attitude toward helmet with a quality standard label and perceived risk. Perceived risk is significantly affected by label marketing investment. Attitude is significantly affected by awareness. Awareness is significantly affected by label marketing investment and clarity. The government can use the result of this study to determine the right strategies to increase motorcycle users' intention to use helmet with a quality standard label.

This study has some limitations. First, data were collected only in Jakarta. Second, the technique used to collect data was convenience sampling and a survey was conducted cross-sectional. To examine the stability of the model, it is recommended to conduct a longitudinal study in other contexts.

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References

- Ackaah, W., Afukaar, F. K., 2010. Prevalence of Helmet Use Among Motorcycle Users in Tamale Metropolis, Ghana: An Observational Study, *Traffic Injury Prevention* 11.5, 522-525.
- Agung, I.G.N., 2011. *Cross Section and Experimental Data Analysis Using Eviews*, 1st ed. John Wiley & Sons, Hoboken, NJ.
- Anderson, J. C., Gerbing, D. W., 1988. Structural equation modeling in practice: A review & recommended two-step approach. *Psychological Bulletin* 103.3, 411–423.
- Badan Pusat Statistik (BPS) DKI Jakarta, 2017. *Statistic Transportation of DKI Jakarta 2016*. BPS of DKI Jakarta Province, Jakarta. [In Bahasa]
- Badan Pusat Statistik (BPS), 2017. *Perkembangan Jumlah Kendaraan Bermotor Menurut Jenis, 1949-2016*. Available at <https://www.bps.go.id/linkTableDinamis/view/id/1133>. [In Bahasa]
- Baek, T. H., King, K. W., 2011. Exploring the consequences of brand credibility in services. *Journal of service marketing* 25.4, 260-272.
- Bagozzi, R. P., 1993. Assessing construct validity in personality research: applications to measures of self-esteem. *Journal of Research in Personality* 27.1, 49-87.
- Becker, E. B., Anishchenko, D. V., Palmer, S. B., 2015. *Motorcycle Helmet Impact Response at Various Levels of Severity for Different Standard Certifications, Automated Vehicles Symposium*. San Francisco, CA.
- Bhukya, R., Singh, S., 2015. The effect of perceived risk dimensions on purchase intention: An empirical evidence from Indian private labels market. *American Journal of Business* 30.4, 218-230.
- Blanco, D. H., Cernicchi, A., Galvanetto, U., 2014. Design of an innovative optimized motorcycle helmet. *Proceedings of the Institution of Mechanical Engineers, Part P: Journal of Sports Engineering and Technology* 0.0, 1-16.
- Bland, M. L., Zuby, D. S., Mueller, B. C., Rowson, S., 2018. Differences in the protective capabilities of bicycle helmets in real-world and standard-specified impact scenarios. *Traffic Injury Prevention*, 19.1, 158-163.
- Brezavšček, A., Šparl P., Žnidaršič, A., 2017. Factors Influencing the Behavioural Intention to Use Statistical Software: The Perspective of the Slovenian Students of Social Sciences. *EURASIA Journal of Mathematics Science and Technology Education* 13.3, 953-986.
- Calder, B. J., Phillips, L. W., Tybout, A. M., 1981. Designing research for application. *Journal of Consumer Research* 8.9, 197-207. In Park, H. H., Sullivan, P., 2009. *Market segmentation with respect to university*

- students' clothing benefits sought: shopping orientation, clothing attribute evaluation, and brand repatronage. *International Journal of Retail & Distribution Management* 37.2, 182-201.
- Chen, ChauShen, 2013. Perceived risk, usage frequency of mobile banking services. *Managing Service Quality: An International Journal* 23.5, 410-436.
- Conrad, P., Bradshaw, Y. S., Lamsudin, R., Kasniyah, N., Costello, C., 1996. Helmets, Injuries and Cultural Definitions: Motorcycle Injury in Urban Indonesia. *Accid. Anal. and Prev.* 38.2, 193-200.
- Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., Kaiser, S., 2012. Guidelines for choosing between multiitem and single-item scales for construct measurement: a predictive validity perspective. *J. of the Acad. Mark. Sci.* 40.3, 434–449.
- Ellis, A. J., Bertoloni, A. F., Thompson, L. A., 2000. A review of research on bicycle helmet ventilation. *Sports Engineering* 3, 185-194.
- Erdem, T., Swait, J., 1998. Brand Equity as a Signaling Phenomenon. *Journal of Consumer Psychology* 7.2, 131-157.
- Fishbein, M., Ajzen, I., 1975. Belief attitude, Intention and Behavior: An Introduction to Theory and Research, Addison-Wesley, Reading, MA, in Armitage, C. J., Christian, J., 2003. From attitudes to behavior: basic and applied research on the theory of planned behaviour. *Current Physiology* 22.3, 187-195.
- Fornell, C. Larcker, D. F., 1981. Evaluating structural equation models with unobservable and measurement error. *Journal of Marketing Research* 18.1, 39-50.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., 2010. *Multivariate Data Analysis*, 7th ed. Prentice-Hall, Upper Saddle River, NJ.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., Tatham, R. L., 2005. *Multivariate Data Analysis*, 6th ed. Pearson-Prentice-Hall, Englewood Cliffs, NJ. In Fotopoulos, C. B., Psomas, E. L., 2010. The structural relationships between TQM factors and organizational performance. *The TQM Journal*, 22.5, 539–552.
- Halimi, M. T., Hassen, M. B., Sakli, F., 2012. Design of a novel comfort liner for a motorcycle helmet. *International Journal of Sustainable Engineering* 5.2, 128-134.
- Hung, D. V., Stevenson, M. R., Ivers, R. Q., 2006. Prevalence of helmet use among motorcycle riders in Vietnam. *Injury Prevention* 12.6, 409–413.
- Hutter, K., Hautz, J., Dennhardt, S., Füller, J., 2013. The impact of user interactions in social media on brand awareness and purchase intention: the case of MINI on Facebook. *Journal of Product & Brand Management* 22.5/6, 342-351.
- Jen, W., Tu, R., Lu, T., 2011. Managing passenger behavioral intention: an integrated framework for service quality, satisfaction, perceived value, and switching barriers. *Transportation* 38.2, 321-342.
- Khor, D., Inaba, K., Aiolfi, A., Delapena, S., Benjamin, E., Matsushima, K., Strumwasser, A. M., Demetriades, D., 2017. The impact of helmet use on outcomes after a motorcycle crash. *Injury, Int. J. Care Injured* 48, 1093-1097.
- Khosroshahi, S. F., Tsampas, S. A., Galvanetto, U., 2018. Feasibility study on the use of a hierarchical lattice architecture for helmet liners. *Materials Today Communications* 14, 312-323.
- Lai, W.-T., Chen, C.-F., 2011. Behavioral intention of public transit passenger – the role of service quality, perceived value, satisfaction and involvement. *Transport Policy* 18.2, 318-325.
- Lavidge, R. J., Steiner, G. A., 1961. A Model for Predictive Measurements of Advertising Effectiveness. *Journal of Marketing* 25.6, 59-62.
- Lin, J. C.-C., Lu, H., 2000. Towards an understanding of the behavioural intention to use a web site. *International Journal of Information Management* 20.3, 197-208.
- Liu, B. C., Ivers, R., Norton, R., Boufous, S., Blows, S., Lo, S. K., Helmets for preventing injury in motorcycle riders. *Cochrane Database of Systematic Reviews* 1:1-44.
- Mills, N. J., 1990. Protective capability of bicycle helmets. *Br. J. Sp. Med* 24.1, 55-60.
- Mills, N. J., Gilchrist, A., 1991. The Effectiveness of Foams in Bicycle and Motorcycle Helmets. *Accid. Anal. & Prev.* 23.2/3, 153-63.

- Mithun, S. K., Umesh, S., Pathan, R., 2013. Conceptual Design on Motor Cycle Helmet to Meet the Requirement of Thermal Comfort, Ergonomics and Safety. *SASTECH Journal* 2.1, 65-71.
- Montes, G. C., Nicolay, R. T. F., 2016. Does clarity of central bank communication affect credibility? Evidences considering governors specific effects. *Applied Economics* 49.32, 3163-3180.
- Park, Chan S., Srinivasan, V., A., 1994. Survey-Based Method for Measuring and Understanding Brand Equity and Its Extendibility. *Journal of Marketing Research* 31.2, 271-288.
- Percy, L., Rosister, J. R., 1992. A Model of Brand Awareness and Brand Attitude Advertising Strategies. *Psychology & Marketing* 9.4, 263-274.
- Pinnoji, P. K., Haider, Z., Mahajan, P., 2007. Design of ventilated helmets: computational fluid and impact dynamics studies, *International Journal of Crashworthiness* 13.3, 265-278.
- Pinnoji, P. K., Mahajan, P., Bourdet, N., Deck, C., Willinger, R., 2010. Impact dynamics of metal foam shells for motorcycle helmets: Experiments & numerical modeling. *International Journal of Impact Engineering* 37, 274–284.
- Pusat Standardisasi, 2015. *Kajian Efektifitas Penerapan Standar Nasional Indonesia Wajib*. Badan Pengkajian Kebijakan Iklim dan Mutu Industri, Kementerian Perindustrian, Jakarta. [In Bahasa]
- Rahman, A. L. B., Jamaludin, A., Mahmud, Z., 2011. Intention to Use Digital Library based on Modified UTAUT Model: Perspectives of Malaysian Postgraduate Students. *International Journal of Information and Communication Engineering* 5.3, 270-276.
- Raju, P. V., Banthia, V., Nassar, A., 2009. Design of Streamlined Motorcycle Helmet with Enhanced Head Protection. *SASTECH* 8.2, 1-8.
- Ramirez, B. J., Gupta, V., 2018. Evaluation of novel temperature-stable viscoelastic polyurea foams as helmet liner materials. *Materials and Design* 137, 298–304.
- Rice, T. M., Troszak, L., Ouellet, J. V., Erhardt, T., Smith, G. S., Tsai, B.-W. 2016. Motorcycle helmet use and the risk of head, neck, and fatal injury: Revisiting the Hurt Study. *Accident Analysis and Prevention* 91, 200–207.
- Roihanah, R., 2013. *Mahasiswa dan Kepatuhan Hukum: Studi Pelaksanaan Pasal 106 UU No. 22 Th. 2009 tentang Lalu Lintas dan Angkutan Jalan*. Kodifikasi 7.1, 104-120. [In Bahasa]
- Sekaran, U., Bougie, R., 2011. *Research Methods for Business: A Skill Building Approach*. 5th Edition. John Wiley & Sons, UK.
- Shuaeib, F. M., Hamouda, A. M. S., Wong, S. V., Umar, R. S. R., Ahmed, M. M. H. M., 2007. A new motorcycle helmet liner material: The finite element simulation and design of experiment optimization. *Materials and Design* 28, 182–195.
- Tang, Y., Wang, X., Lu, P., 2014. Chinese consumer attitude and purchase intent towards green products. *Asia-Pacific Journal of Business Administration* 6. 2, 84-96.
- Tari, J.J., Molina, J.F., Castejon, J.L., 2007. The relationship between quality management practices and their effects on quality outcomes. *European Journal of Operational Research*, 183.2, 483-501.
- Tinard, V., Deck, C., Bourdet, N., Willinger, R., 2011. Motorcyclist helmet composite outer shell characterisation and modelling. *Materials and Design* 32, 3112–3119.
- Velčovská Š., Marhounová M., 2005. Marketingové pojetí značky. VŠB-TU, Ostrava. In Velčovská, Š., Sadílek, T., 2014. Analysis of Quality Labels Included in the European Union Quality Schemes. *Czech J. Food Sci.* 32.2, 194–203.
- Wen, C. H., Lan, L. W., Cheng, H. L., 2005. Structural equation modelling to determine passenger loyalty toward intercity bus services. *Journal of the Transportation Research Board* 1927.1, 249-255.
- WHO, 2016. Reported distribution of road traffic deaths by type of road user: Data by country. Available at <http://apps.who.int/gho/data/node.main.A998>.