

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Paradigm

According to Saunders et al. (2020), there are five major philosophies in business and management. One is positivism, which emphasizes a rigorous scientific empiricist technique for obtaining pure data and facts free of human interpretation or prejudice. A positivist researcher would stay impartial and detached from the research and data to prevent influencing study conclusions. As seen below, one of the typical positivism paradigm methods is the quantitative method.

Table 3. 1 Positivism Research Philosophical Positions in Business and Management Research

Ontology (nature of reality or being)	Epistemology (what constitutes acceptable knowledge)	Axiology (role of values)	Typical methods
Positivism			
Real, external, independent One true reality (universalism) Granular (things) Ordered	Scientific method Observable and measurable facts Law-like generalisations Numbers Causal explanation and prediction as contribution	Value-free research Researcher is detached, neutral and independent of what is researched Researcher maintains objective stance	Typically deductive, highly structured, large samples, measurement, typically quantitative methods of analysis, but a range of data can be analysed

Source: (Saunders et al., 2020)

Then Sugiyono (2019) also concludes that the quantitative method is research based on positivism philosophy. This method is used to study a specific population or sample, using data collected utilizing research tools and quantitative or statistical data analysis. This type of research aims to describe and test existing hypotheses.

The research approach used in this study is a quantitative method because quantitative methods are carried out with research data in the form of numbers and analysis using statistics (Sugiyono, 2019). According to Sugiyono (2019), causal research is research that explains the causal relationship between free variables (independent) and bound variables (dependent).

3.2 Research Object

The object of research in this study is the soft structured carrier (SSC), one of many baby carriers on the market. Meanwhile, the subject research is millennial parents who have bought soft structured carrier (SSC) at least once before and still have kids below 1-year-old. The questionnaire was spread through social media Facebook, Instagram, and WhatsApp.

3.3 Population and Sample

3.3.1 Population

According to Sugiyono (2019), the population is all objects or subjects with certain characteristics determined by researchers to be the research subject, and then conclusions are generated. For example, the population in this study is mothers aged 25 to 40 who fall into the millennial category. For this reason, the number of the population cannot be known with certainty.

3.3.2 Sample

A sample is a portion of the whole number and characteristics possessed by the population (Sugiyono, 2019). Based on the guideline from Hair et al. (2017),

the ten times rule should be viewed as a rough guideline for the minimum sample size specific to the PLS path model.

Furthermore, Hair et al. (2019) also stated that preferably 100 samples are required for the minimum sample. However, based on Monte Carlo studies conducted by researchers on various estimation methods, the minimal sample size required to reduce bias in all types of SEM estimations is 200 (Kline, 2016). Therefore, in this study, based on purposive (judgemental) sampling techniques, 271 samples were obtained that met the criteria.

The sampling techniques in this study used non-probability sampling. Non-probability sampling is used because, under certain conditions, probability sampling is considered unsuitable even though it is possible to use (Babbie, 2008). Because in this study, the spread of questionnaires requires samples that are not suitable when using probability sampling. Non-probability sampling has several types: purposive (judgemental) sampling, snowball sampling, and quota sampling (Babbie, 2008). In this study, researchers use purposive (judgemental) sampling. Judgemental sampling is a type of convenience sampling in which population components are chosen depending on the researcher's preferences.

Using purposive (judgemental) sampling techniques means that not all samples have criteria matching the studied phenomena. Therefore, the author chose purposive (judgemental) sampling techniques that establish certain considerations or criteria in this study, such as:

1. Mothers aged 25 to 40 years (Millennials Mother).

2. She lives in the big cities and is a resident of the Jabodetabek area, has better education, better income, and is more aware of the children's health.
3. Having a child below 12 months old.
4. Ever got information about the safety of baby carriers (babywearing safety) through social media.
5. Have purchased a Soft Structured Carrier (SSC) at least once.

3.4 Variable Operation

Variables are divided into two, namely independent variables and dependent variables. According to Sugiyono (2019), independent variables are factors that influence or cause changes and the formation of dependent variables. Meanwhile, the dependent variable is a variable that is impacted or becomes a result of the presence of independent factors.

Operational variables are very important to make it easier to define the problems discussed in each variable. The research variables to be studied have been determined based on the formulation of research problems and the theoretical definition outlined in the previous section. Conceptual definitions provide a clear and firm limit in describing variables, but they cannot yet be measured. Therefore, variable operationalization is needed so that variables can be measured. This method gives meaning to variables by determining measurable activities or operations. The study included variables Risk Communication, Perceived Risk, Subjective Norms, and Purchase Intention.

The table below summarizes the variables to be analyzed, theories, sub-dimensions, indicators, measurement scales, and references. The measurement scale used in this study used the Likert five scale (1–5-point scale), meaning one strongly disagrees and five strongly agree.

Table 3. 2 Variable Operation

No	Variable	Definition	Indicators	Code	Measurement	Scaling Technique
1	Risk Communication	Risk communication is defined as exchanging information, advice, and opinions about risks and factors related to risk in <i>real-time</i> between experts, public figures or officials, and people at risk (Tim Penyusun, 2021). The purpose of risk communication is so that the public can make decisions to avoid or manage risk behaviors to protect themselves and others. Adapted from (Heydari et al., 2021; Peres et al., 2020)	Risk Information Exposure	RC1	I regularly see and read information about Babywearing Safety	5 Likert Scale
				RC2	I often follow the development of information about Babywearing Safety	
				RC3	I usually take a long time to understand the information about Babywearing Safety	
			Information Gathering Ability	RC4	Receiving information about Babywearing Safety was easy for me	
				RC5	I know where to find information about Babywearing Safety	
				RC6	It is easy for me to understand the information about Babywearing Safety	
				RC7	News media provides accurate information about Babywearing Safety	
				RC8	The news media provides enough information about Babywearing Safety	
				RC9	I believe in the news reported by	

No	Variable	Definition	Indicators	Code	Measurement	Scaling Technique
2	Perceived Risk	According to Slovic et al. (2000), everyone's decision-making is determined by their perception of the risks at hand and how important their influence is. Risk perception is a form of interpretation or assessment of a risk situation based on experience or beliefs. Adapted from (Beneke et al., 2012; Laforet, 2007; Yoo et al., 2016)	Trust in Government		the news media about Babywearing Safety	5 Likert Scale
				RC10	I am convinced that the government is protecting citizens from improper use of baby carriers.	
				RC11	The government is doing its utmost to minimize the risks from improper use of baby carriers.	
			Functional Risk	RC12	I believe in the cooperation and coordination of relevant authorities in the country.	
				PR1	In my opinion, using a Soft Structured Carrier (SSC) has lower risk because it delivers the performance function I expected.	
			Financial risk	PR2	In my opinion, using a Soft Structured Carrier (SSC) following the energy and costs that I will spend	5 Likert Scale
			Physical risk	PR3	In my opinion, using a Soft Structured Carrier (SSC) has a health impact on my baby.	
			Psychological risk	PR4	In my opinion, using a Soft Structured Carrier (SSC) can reduce my concerns over my baby's safety.	
			Social risk	PR5	In my opinion, using a Soft Structured Carrier (SSC) gives me a sense of pride in my social environment.	

No	Variable	Definition	Indicators	Code	Measurement	Scaling Technique
3	Subjective Norms	Subjective norms are assumed to be a function of trust, where the beliefs referred to in this case are a person's beliefs regarding a particular individual or group who agrees or disagrees with performing a behavior. Adapted From (Ramayah et al., 2009; Susanto et al., 2022)	The role of the family	SN1	My family suggested that I could buy and use a Soft Structured Carrier (SSC)	5 Likert Scale
			The support of people who are considered important	SN2	I get the full support of those closest to me to buy and use Soft Structured Carrier (SSC)	
			The support of friends	SN3	My friends suggest that I can buy and use a Soft Structured Carrier (SSC)	
4	Purchase Intention	Purchase intention is a plan to purchase products consumers think as most beneficial that fit their brand preference. (Utami et al., 2020) Adapted From (Mantala & Suasana, 2018)	Transactional interest	PI1	I have a desire to buy and use a Soft Structured Carrier (SSC)	5 Likert Scale
			Referral interest	PI2	I have a desire to refer friends to buy and use Soft Structured Carrier (SSC)	
			Preferential interest	PI3	I have a desire to buy and use a Soft Structured Carrier (SSC) compared to other types of baby carriers	
			Explorative interest	PI4	I am always looking for information about the advantages and disadvantages of Soft Structured Carrier (SSC) products.	

3.5 Data Collection Techniques

The data collection can be divided into primary and secondary sources based on the data collection source (Sugiyono, 2019). Primary sources offer data directly to data collectors, whereas secondary sources, such as documents, do not provide data directly to data collectors.

In this study, researchers used questionnaires as primary data collection techniques. The questionnaire is a data collection tool that asks respondents questions (Sugiyono, 2019). First, the questionnaire will be distributed using Google Forms. Then the data will be analyzed using SPSS version 26 software and SmartPLS 3.3.3 software. To measure the answers from respondents, researchers used a Likert scale of 1-5.

3.6 Data Analysis Techniques

Sugiyono (2019) states that statistical data analysis is used in quantitative research. There are two kinds of statistics used: descriptive statistics and inferential statistics. Descriptive statistics are used to assess data by describing or characterising the information gathered without reaching a conclusion. While inferential statistics is a statistical approach for analyzing sample data, the findings are then extended to the entire population. Therefore, this study will use these two statistics as data analysis techniques.

Furthermore, this study also uses Partial Least Square Structural Equation Modeling (PLS-SEM) as the data analysis technique. Structural Equation Modeling (SEM) is used to close the weaknesses of the regression method. According to Hair et al. (2019), SEM research methods are grouped into two approaches, namely the Covariance Based SEM (CB-SEM) approach and the Variance Based SEM or Partial Least Square (PLS) approach. Partial Least Square is a powerful method of analysis in this method is not based on many assumptions.

According to Husein et al. (2015), the purpose of using PLS is to make predictions. These predictions are used to forecast the link between constructs and assist the author in obtaining the value of latent variables that intend to carry out predictions in his study. The latent variable is the aggregate linear of its indicators.

3.6.1 Pre-test Data Analysis

Before testing the relationship between variables, it is necessary to test the validity and reliability (Creswell & Creswell, 2018). A valid questionnaire will gather correct data and measure the idea being examined, whereas a trustworthy questionnaire will collect data consistently (Creswell & Creswell, 2018).

The pre-test used 30 sample data, then analyzed using SPSS software v.26 to analyze validity and reliability.

3.6.1.1 Validity Testing

According to Saunders et al. (2020), there are four criteria for validity such as (1) Internal validity or measurement validity; (2) Content validity; (3) Criterion-related validity or predictive validity; (4) Construct validity performed through convergent validity and discriminant validity tests. Internal validity of questionnaires relates to the questionnaire's capacity to measure what it is intended to assess.

Content validity is a benchmark for seeing the extent to which measurement tools (such as questions in questionnaires) provide adequate coverage of investigative questions. An assessment of 'adequate coverage' can be made in several ways. Criterion-related validity or predictive validity relates to the ability of measures (questions) to make accurate predictions. It means that if the researcher

uses the data collected by the questions in the questionnaire, the researcher can predict the future purchase behavior of customers.

Last, construct validity refers to the degree to which a set of questions (known individually as scale items and discussed later in this section) measures the existence of the construct that the researcher wants to measure. Again, it depends on lexical and sentinel misconceptions for each minimized scale item.

3.6.1.2 Reliability Testing

According to Saunders et al. (2020), reliability relates to constancy. Although the questionnaire test was valid, it needed to be dependable; there was insufficient validity. On the other hand, respondents could interpret the questions in the questionnaire consistently. Reliability is all about the robustness of the questionnaire, and whether it will provide consistent findings multiple times and under varied settings, such as with different samples or questionnaires that the researcher fills out with different samples, is what reliability is all about.

Reliability is generally tested by measuring the value of Cronbach's alpha. For example, according to Hair et al. (2019), the lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research.

3.6.2 Main-test Data Analysis

According to Hair et al. (2017), there are six stages to applying PLS-SEM: specifying the structural model, specifying the measurement model, data collection and examination, model estimation and the PLS-SEM algorithm, evaluation of measurement models, and assessing PLS-SEM structural model results

3.6.2.1 Outer Model Analysis

This outer model analysis is performed to determine the validity and dependability of the relationship pattern between the variables of a notion represented. The table below describes how to assess the validity and reliability of the outer model analysis.:

Table 3. 3Rule of Thumb Measurement Model

Testing	Parameters	Rule of Thumb
Convergent Validity	Loading Factor	> 0.50 for Exploratory Research
	Average Variance Extracted (AVE)	> 0.70 for Confirmatory Research
Discriminant Validity	Fornell Larcker	Correlation between variables themselves > Correlation between other variables
	Cross Loading	Correlation between indicators and intended variables > Correlation between indicators and other variables
	HTMT Inference	Confidence Interval < 1.00 both 97.5% and 2.5%
Reliability	Cronbach's Alpha	> 0.70 for Confirmatory Research
		> 0.60 still acceptable for Exploratory Research
	Composite Reliability	> 0.70 for Confirmatory Research 0.60 - 0.70 is still acceptable for Exploratory Research

Source: Adopted from (Joe F. Hair et al., 2014)

3.6.2.2 Structural Model Analysis (Inner Model)

Using SmartPLS v.3.3.3 in conducting the structural model analysis, the proposed research framework used in this study is shown in figure 3.1:

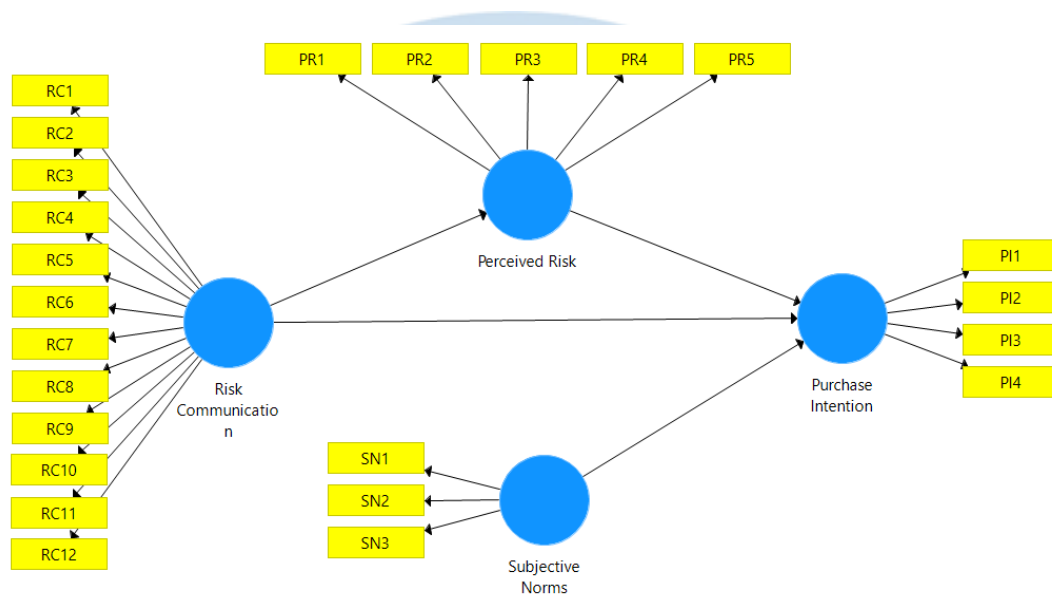


Figure 3. 1 Proposed Research Model Plotted with SmartPLS v3.3.3
Source: Researcher (2022)

The structural model represents the theoretical or conceptual element of the path model. The latent variables and their route links are included in the structural model. The structural model is also known as the inner model in PLS-SEM (Hair et al., 2017).

a. Coefficient of Determination Test (R^2)

Assessing the model with SEM-PLS begins by looking at R-Square (R^2) for each endogenous latent variable. According to Hair et al. (2019), R^2 denotes how much the external variable explains the endogenous variable. R^2 has a value ranging from 0 to 1. When R^2 approaches one, the independent variables give all the information required to predict the fluctuation of the endogenous variable. In contrast, the smaller the R^2 , the less capable independent variables are of explaining fluctuations in endogenous variables. Furthermore, the value of R^2 has the drawback

of increasing every time one exogenous variable is added, even if the exogenous variable has no substantial influence on the endogenous variable.

The values in this test indicate the extent to which the exogenous construct describes the endogenous construct. According to Hair et al. (2017), as a guideline, the R^2 value is 0.25, 0.50, and 0.75 represents weak, moderate, and substantial levels. However, R^2 values of 0.10 and even lower are deemed satisfactory in several research contexts (Hair et al., 2019). As a result, R^2 results should always be evaluated in the study context.

b. Effect Size Test (f^2)

The effect size for each path model can be seen by calculating the effect size (f^2). For example, based on Cohen in Hair et al. (2019), based on the value of the effect size (f^2), the size of the effect can be determined that 0.02, 0.15, and 0.35 represent successively small, moderate, and large effects and f^2 value less than 0.02 indicate there is no effect.

c. Predictive-Relevance Test (Q^2)

Using predictive relevance values (Q^2), we test the Goodness of Fit structural model on the inner model. A Q^2 value larger than 0 (zero) shows the model is predictively relevant. This statistic is derived by using a sample reuse technique known as blindfolding. When the number of observations divided by the removal distance is not an integer, the removal distance is set between 5 and 10 (Hair et al., 2019).

According to Hair et al. (2017), the missing data points are treated as missing values and are replaced with average values. The estimated parameters help in predicting the omitted data points and the difference between the omitted data points and the projected data points, which are used as inputs for Q^2 computations. Blindfolding is only used on endogenous structures with reflected indicators. If Q^2 is larger than zero, it denotes the route model's predictive usefulness in the context of endogenous constructs and related indicators (Hair et al., 2017).

3.6.2.3 Mediation Effect Analysis

Hair et al. (2019) claim that a mediating effect arises when a third variable intervenes between two related conceptions. When the external construct changes, the mediator variable changes, causing the endogenous construct to change. By examining the strength of the mediator variable's correlations with the other constructs, the processes that support the cause-effect link between an exogenous and endogenous construct may be proved. In its most basic version, the analysis examines only one mediator variable. However, the route model can contain many mediator variables at the same time (Hair et al., 2017).

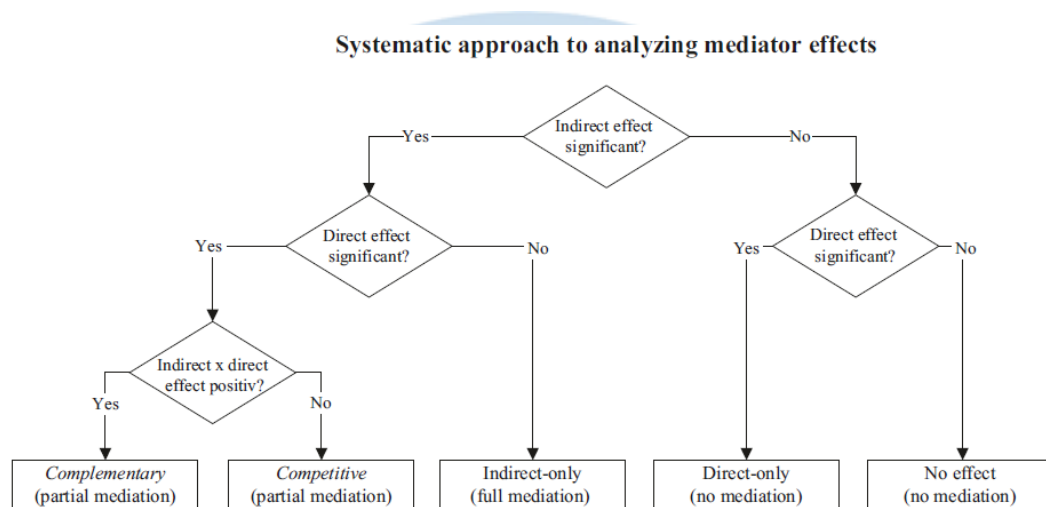


Figure 3. 2 Mediator Analysis Procedure in PLS

Source: (Nitzl et al., 2016)

Hair et al. (2017) categorize two types of non-mediation: Direct-only non-mediation and No-effect non-mediation. In addition, Hair et al. (2017) also identify three types of mediation:

- a. **Complementary mediation:** The indirect and direct impacts are important and point in the same direction.
- b. **Competitive mediation:** The indirect and direct impacts are substantial and point in different directions.
- c. **Indirect-only mediation:** The indirect influence is considerable but not the direct effect.

3.7 Pre-Test Data Analysis Result

3.7.1 Validity Testing

The table below shows the result of the pre-test data analysis on validity testing on 30 samples that meet this research's criteria.

Table 3. 4 Validity Testing on Pre-test Data Analysis

No	Variables	Indicators	Pearson Correlation	Loading Factor	Result
1	Risk Communication (RC)	RC1	0.671	0.756	Valid
		RC2	0.587	0.694	Valid
		RC3	0.184	-0.059	Not Valid
		RC4	0.539	0.630	Valid
		RC5	0.641	0.771	Valid
		RC6	0.745	0.851	Valid
		RC7	0.568	0.589	Valid
		RC8	0.564	0.617	Valid
		RC9	0.717	0.746	Valid
		RC10	0.691	0.526	Valid
		RC11	0.720	0.556	Valid
		RC12	0.744	0.606	Valid
2	Perceived Risk (PR)	PR1	0.950	0.961	Valid
		PR2	0.855	0.884	Valid
		PR3	0.889	0.896	Valid
		PR4	0.824	0.851	Valid
		PR5	0.725	0.653	Valid
3	Subjective Norms (SN)	SN1	0.823	0.862	Valid
		SN2	0.846	0.907	Valid
		SN3	0.686	0.572	Valid
4	Purchase Intention (PI)	PI1	0.714	0.790	Valid
		PI2	0.797	0.858	Valid
		PI3	0.707	0.661	Valid
		PI4	0.502	0.359	Valid

Source: SPSS software version 26 Analysis

Validity testing conducted on pre-test data analysis consists of two values: Pearson Correlation and Loading Factors. Both indicators require a value > 0.50 to be considered valid for each variable (Hair et al., 2019). As shown in Table 3.4, the pre-test data analysis found that one indicator is not valid. That indicator is RC3, in which this item is read "I usually take a long time to understand the information about Babywearing Safety," and the value is only 0.184 for Pearson Correlation and -0.059 for Loading Factors. That indicator has a very low value of Pearson

Correlation and Loading Factors which is < 0.50 . Therefore, that indicator will be removed from this study and will not be analyzed in the main test data analysis since that indicator cannot measure Risk Communication variables properly. Data for validity testing on pre-test data can be seen in Appendix F and Appendix G.

3.7.2 Reliability Testing

The table below is the result of the pre-test data analysis for the reliability test. The reliability testing method used in this study was Cronbach's Alpha. This reliability test was carried out on 30 samples that matched the research criteria.

Table 3. 5 Reliability Testing on Pre-test Data Analysis

No	Variables	Cronbach's Alpha	Reliability
1	Risk Communication (RC)	0.843	Reliable
2	Perceived Risk (PR)	0.891	Reliable
3	Subjective Norms (SN)	0.666	Reliable
4	Purchase Intention (PI)	0.620	Reliable

Source: SPSS software version 26 Analysis

In general lower limit for Cronbach's alpha is 0.60 to be accepted as reliable (Hair et al., 2019). From the tests above, it can be concluded that all variables are reliable for this study, and the main-test data analysis can be continued. This pre-test shows that all values of Cronbach's Alpha are above > 0.6 . Cronbach's alpha is the most widely used to measure reliability. Detailed data for reliability testing on pre-test data can be seen in Appendix H.