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# Social norm compliance and involvement with Covid-19: Demographic differences in developing and developed countries



Roger B. Mason<sup>(a)\*</sup> Karen M. Corbishley<sup>(b)</sup> Thomas Dobbelstein<sup>(c)</sup>

<sup>(a)</sup> Retired Research Professor: Department of Marketing and Retail Management, Durban University of Technology, South Africa.

<sup>(b)</sup> Senior Lecturer: Department of Marketing and Retail Management, Durban University of Technology, Durban, South Africa

<sup>(c)</sup> Professor, Baden-Württemberg Cooperative State University, Ravensburg, Germany, and Department of Marketing and Retail Management, Durban University of Technology, South Africa. Birkenweiler 4, 88699, Frickingen, Germany

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### ABSTRACT

Consumer decisions are influenced by various variables, including compliance with society's social norms and by involvement by consumers with the issue under consideration. Both variables have influenced consumers' actions during previous pandemics. Therefore, this study investigated involvement with the Covid-19 pandemic, together with social norm compliance (SNC), their mutual influence, and how demographic characteristics and country of residence influenced these three issues. The methodology involved a quantitative descriptive cross-sectional survey, with a quota sample of 1096 responses, based on age, gender, education, habitation, and income. The research was conducted with populations representing the consumers who patronize major retailers in a developed country (Germany) and a developing one (South Africa). Data was collected via questionnaires e-mailed to commercial consumer panels covering both countries. The findings showed that involvement is influenced by gender, age, education, habitation, and country of residence, but that SNC is not influenced by demographics but does differ according to country. Further findings were that involvement with Covid-19 strongly influences SNC and, similarly, SNC also strongly influences involvement with Covid-19. Furthermore demographics, excluding habitation, also influence these variables. However, the relationship between the involvement and SNC variables does not differ between the two countries. This study has provided a better understanding of consumers' involvement with Covid-19 and SNC as components of consumer behavior, which is important since, during the Covid-19 pandemic, retailers have been instrumental in implementing health protocols. Therefore, understanding the relationship between involvement with Covid-19 and SNC, and how they are influenced by consumer demographics, is important.

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## Introduction

Several studies have taken place since the advent of the Covid-19 pandemic, with much interest from academics being focused on consumer behavior and how it might have changed in such a dramatically different environment. Extant literature indicates an increase in both impulse purchasing and panic buying due to the uncertainty and fear generated by the COVID-19 pandemic (Ahmed, Streimikiene, Rolle, & Duc, 2020; Dobbelstein & Naidoo, 2020; Harahap, Ferine, Irawati, Nurlaila, & Amanah, 2021; Kaur & Sharma, 2020; Naeem, 2021). This increase in impulse purchasing has happened in both traditional and online shopping environments, as customers try to stock up on essentials that they fear may become scarce or unavailable. In addition to an increase in impulse shopping during the pandemic, the literature also indicates a greater emphasis on utilitarian products (products bought to achieve tangible outcomes, such as household staples like toilet paper) than hedonic products (products that regulate consumer emotions such as beauty care or entertainment) (Yang, Peng, & Wang, 2020; Garbe, Rau & Toppe, 2020; Soudi & Bouallala, 2020). Such changing shopping patterns may be prevalent throughout the world as recent research indicates that there appears to be no significant difference between

\* Corresponding author. ORCID ID: 0000-0001-7927-1767

the buying behavior of consumers in a developed country compared with that of consumers in a developing country during the Covid-19 pandemic (Corbishley, Dobbstein, & Mason, 2022).

Consumer involvement was defined by Zaichkowsky (1985, in Sharma & Klein, 2020) as “an individual’s perceived relevance of an object based on his/her needs, values and interests”. The suggestion was that the more consumers are interested in an object and have a need for and/or value it, the greater their involvement will be with the object. Pucinelli et al. (2009) expanded on this by stating that the higher the consumer’s level of involvement, the higher the level of cognition would be during the acquisition of merchandise.

Customer involvement is susceptible to social pressures, with customers responding when they feel that they are required to behave in certain ways (Blackwell, Miniard & Engel, 2006). These ‘social norms’ are defined as peoples’ perceptions of group behavior in a certain context along with what is viewed as appropriate (Yang et al., 2020). Adherence to these social norms is known as social norm compliance, which has been found to mediate consumer decisions (Yang et al., 2020; Bicchieri, Dimant, Gächter, & Nosenzo, 2020).

However, it is noted that not all individuals are the same, with some having a greater capacity for processing and dealing with high-risk environments than others, and some being more easily influenced in their behavior by others. Although an understanding of consumer behaviors might expect demographics to influence the above behaviors, research appears to show little difference, other than for income, between demographic factors (Kaur & Sharma, 2020). But since Aschwanden et al., (2020) found that age was a moderating factor, due to older people being at more risk of Covid-19, we believe that further research into demographics as moderating variables is necessary. These discrepancies in observations of consumer demographics indicate a lack of clarity. Some people might also be better informed than others and, as a result, deal differently with the way they carry out their acquisition of necessary merchandise thereby justifying further research into these constructs.

Covid-19 has had such wide-spread global influence over purchasing behavior, including activities such as on-line shopping, panic buying and stockpiling (for example, Ivkovic, 2021; Omar, Nazri, Ali, & Alam., 2021; Verma & Naveen, 2021; Garbe et al., 2021; Abe & Mugobo, 2021; Mason, Narcum, & Mason, 2020), and since the findings of extant research appear to be inconsistent, further research was warranted. In addition, according to Omar et al. (2021), Covid-19 has changed many consumer behavioral processes, thereby creating new research questions that need to be answered. Ivkovic (2021) and Wright and Blackburn (2020) agreed, suggesting that some new behaviors might become habits in the future, due to their repetition and reinforcement caused by the waves of Covid-19 and the length of the pandemic. Therefore, these changes, which could influence future business practice, need to be investigated and better understood. Thus, this study will contribute to this body of academic literature and hopefully will encourage a further stream of research into changes in consumer behavior prompted by Covid-19, such as on-line shopping, impulse purchasing, panic buying, stockpiling and hoarding.

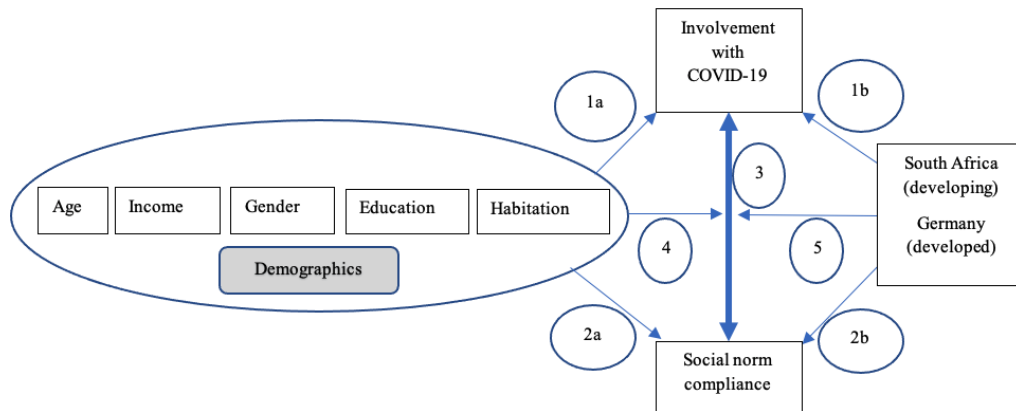
The purpose of this study is to identify the extent to which SNC influences consumers’ desire to know more about a pandemic, in this case Covid-19, or alternatively, if being more involved with the pandemic leads to consumers being more socially norm compliant. Furthermore, if consumers’ SNC behavior differs according to whether they are more or less involved with the Covid 19 pandemic, does this relationship differ according to demographic factors such as gender, age, income, education and place of habitation? By this we mean do different types of people (e.g., male/female, young/old, etc.) adhere to, or reject, social norms differently according to whether they are more or less knowledgeable about and involved with the Covid-19 pandemic?

The objectives of this study are therefore:

- i. To determine whether involvement with Covid-19 is influenced by (a) demographic factors (gender, age, income, education, and habitation) or (b) country
- ii. To assess whether SNC is influenced by (a) demographic factors (gender, age, income, education and habitation) or (b) country
- iii. To identify whether there is a relationship between involvement with Covid-19 and SNC
- iv. To assess whether the relationship between involvement with Covid-19 and SNC is influenced by demographic factors
- v. To identify whether the relationship between involvement with Covid-19 and SNC is influenced by country

A better or fuller understanding of how different consumers are influenced by, and adhere to, social norms, and the extent to which their behavior differs according to how involved they are with the pandemic, could help marketers in various marketing and promotional activities. The resulting more effective marketing could influence both product or service purchases, and persuade consumers to adhere to the various pandemic prevention activities, such a vaccination, mask wearing, social distancing and hand washing or sanitizing.

These various relationships between the ‘involvement with Covid-19’ and ‘social norm compliance’ constructs and the demographic variables are illustrated in Figure 1.



**Figure 1:** Involvement/SNC model

The remainder of this research paper first provides a literature review on the key study variables and then focuses on explaining in detail the methodology used for the research. This is followed by presentation of the results and a discussion of their application to the five research objectives and how they contribute to the extant literature. The concluding section comprises a summary and limitations of the study, and implications and contribution of the findings, as well as recommendations for further research.

## Literature Review

### The Covid-19 pandemic

The Covid-19 pandemic first became apparent in 2019 in China, with the World Health Organization (WHO) pronouncing it as a global pandemic in March 2020 (Caplanova, Sivak, & Szakadatova, 2021). Di Crosta et al. (2021) highlighted that the pandemic is far more than a health scare and has changed the entire fabric of the way in which people conduct their lives. Verma and Naveen (2021) added that events such as the Covid-19 pandemic interfere with established buying behavior patterns. According to Qin, Niu, Huang, & Xu (2011), research conducted during a similar health crisis revealed that most consumers actively engage with any information that is available to them to understand how they should behave in order to protect themselves and their families, including activities like social distancing, minimizing shopping trips, shopping online, mask wearing and hand sanitizing.

### Consumer behavior during the pandemic

Mason et al. (2020) noted that the pandemic has had a significant effect on buying behavior in the US, with a profound decrease in the number of durable products (for example home appliances, consumer electronics, furniture, tools, sports equipment and toys) purchased since the advent of the virus. The pandemic dramatically changed the way that people conducted their lives, including their attitudes towards different products and the way in which purchases are made (Zaki & Hamid, 2021; Mason et al., 2020). Verma and Naveen (2021) also found a rapid decline in the purchasing of products that were deemed to be not essential to consumers, that is goods that were not essential to survival, for example, alcohol and luxury goods. Abe and Mugobo (2021) also found this trend of consumers focusing their purchasing on essential, survival products rather than discretionary purchases. It is important to understand such consumption and purchasing issues, as consumer behavior plays a vital role in the economic health of individual countries, as well as the world as a whole.

### Consumer involvement with Covid-19

Research during the H1N1 influenza pandemic some ten years ago showed that some people became very involved with the pandemic, seeking to understand more about the disease and about vaccination to reduce the threat of the disease (Qin et al., 2011). During the current Covid-19 pandemic, media communications, in addition to increasing involvement, seem to have also had a significant influence on consumer behavior, for example, reports on the economic situation influence purchase intentions (Koch, Frommeyer & Schewe, 2020).

The higher the level of involvement on a consumer's part, the greater the likelihood that they will make use of complex processes and thinking when obtaining products (Pucinelli et al., 2009), with social media being key to keeping consumers truthfully informed about the pandemic (Vazquez et al., 2020; Naeem, 2021). Expanding on the concept of involvement, several researchers have conducted studies where consumer involvement is related to concepts other than products but related to proximity to specific contexts. For example, Sharma and Klein (2020) used involvement to try to interpret decision making styles, while during the previous H1N1 influenza pandemic, Qin et al. (2011) studied consumers' levels of involvement with information about the pandemic, finding that greater involvement led to greater understanding which led to less perception of risk and thus less panic. Yang et al. (2020) examined how involvement in Covid-19 issues affected consumers' buying behavior, as well as how they coped with problems and the impact on social norms on their consumer behavior, using the theory of awe to explain such behavior.

### **Social norm compliance (SNC)**

Blackwell et al. (2006) state that customer involvement is subject to social pressures with most individuals feeling that they are obliged to behave as required by society. According to Bizer, Magin & Levine (2013), social norms are evident when cognitive and behavioral processes are engaged. Social norms are defined by Cialdini and Trost (1998, in Melnyk, Carrillat, & Melnyk, 2021) as mutually understood rules and standards for individuals in a particular group to refer to for appropriate behavior. Kittel, Kalleitner, & Schiestl. (2021) described two types of social norms, namely the descriptive form where people would observe from others what the correct behavior should be, while injunctive norms suggested that individuals would behave in a certain way to win the approval of others. Either way, both these versions could contribute towards the appropriate behavior being carried out in a given situation. Although not laws, these guidelines play a role in consumers' choices that they make daily, including those related to consumption (Melnyk et al., 2021). Social norms are common to a group and one of the main reasons why individuals choose to follow social norms is to avoid being ostracized by others in the group. Social norms are also likely to provide individuals with an example to follow when it is not clear as to what appropriate behavior is in a given situation (Chang, Milkman, Chugh, & Akinola, 2019).

Although social norm compliance (SNC) is widely discussed in the literature, an extensive literature search did not reveal a formal definition of SNC. Therefore, we have defined SNC, according to Bicchieri et al. (2020: p. 4), as the "extent to which social norms are followed ... where empirical expectations play a crucial role." Although a fair amount of research has taken place in the realm of social compliance, most of the research that applies to the pandemic was conducted with respect to compliance with activities such as social distancing and other methods employed to slow down the spread of the virus (Caplenova et al., 2021; Aamir et al., 2021) and not to the compliance to these actions as social norms.

Melnyk et al. (2021) highlight the fact that when consumers become aware that their freedom is being threatened because of new norms, they might respond in a negative way (i.e., compliance is avoided). Yang et al. (2020) refined social norm definitions to accommodate the Covid-19 crisis by explaining that social norms in this scenario would describe the behavior that people adopt to cope with the situation they are facing. Therefore, groups of people from similar environments might find themselves looking towards others for confirmation of the appropriate actions to take. In these instances, the overwhelming presence of the virus might cause many more people to do so. Ahmad (2020, in Wu, Font, & McCamley, 2022) found that individuals' social norms did not necessarily influence how willing people were to adopt recommended measures to inhibit the spread of the virus.

Although a great number of regulations and recommendations were put in place to manage Covid-19 throughout the world, these were only deemed to have the required effect when compliance was practiced, which was not the case in many instances (Caplanova et al., 2021).

### **Demographics and Covid-19**

No literature relating directly to the effect of demographics on the relationship between involvement and SNC was found. However, much of the research on consumer behavior and Covid-19 has touched on various aspects of the effects of demographics, i.e., age, gender, income, education, and habitation, on different aspects of consumer behavior in relation to Covid-19.

Previous research by He et al. (2018), Liu et al., (2019) and Vohs and Faber (2007), as reported by Xiao, Zhang and Zhang, 2020, showed that demographic variables influence impulsive buying behavior. However, the research by Yang et al. (2020) showed that demographic variables such as education level, monthly income, etc. did not influence the consumer behavior model. Research by Garbe et al., (2020) on toilet paper stockpiling during Covid-19 also found most demographic factors (e.g., gender, household size, place of residence, political attitudes) were not major drivers of consumer behavior, which they identified as the emotionality and conscientiousness personality traits.

Despite the above, more generic, findings, there is considerable research showing that demographic factors could be significant to consumer behavior, and therefore could influence the relationship between involvement with Covid-19 and SNC. For example, gender seems important since Aschwanden et al. (2020) reported that women show both more hedonistic buying behavior, especially in times of crisis, and more concern for the impact of Covid-19 than men, while men showed greater adherence to social norms.

Regarding the age variable, Aschwanden et al. (2020) found that older respondents had fewer concerns about the impact of Covid-19 than younger respondents, and that such concerns by the different age categories varied according to personality characteristics. Garbe et al. (2020) suggests that the probability of feeling threatened by the pandemic, and therefore stockpiling items such as toilet paper increases significantly with age. Furthermore, Koch et al. (2020) found that younger consumers also tend towards more hedonistic buying behavior. They also maintained that, since young consumers are more active users of social media and are therefore more influenced by social media, they can be expected to more involved with Covid-19. Further emphasizing the possible importance of age to understanding consumer behavior during the Covid-19 pandemic, Zwanka and Buff (2020) hypothesized that consumer behavior will be so impacted by Covid-19, with the impact varying by age, that a new generational cohort, as represented by the collective response of the group maturing during the Covid-19 pandemic, will arise.

Regarding other aspects of demographics, Aschwanden et al. (2020) found that those with higher education and higher income reported greater concern about Covid-19, but Yang et al. (2020) felt that purchasing behaviors were changing, regardless of culture or nationality.

Most research during the period of the Covid-19 pandemic has been focused on the virus itself, and very little has been conducted on studying how consumers, or social groups of consumers, have reacted to the changed environment and to the social pressures that have resulted. Ross (2021) stresses that Covid-19 will not disappear any time soon, becoming endemic, and therefore marketers should include it and its' influence into their future understanding of consumer behavior and into their future marketing plans. For marketers it is, therefore, essential to understand how this new social and economic environment is changing and influencing consumer behavior and how product, service and social marketing will need to change to cope with this new environment.

## Research and Methodology

A quantitative, descriptive, cross-sectional survey, with quota samples based on age, gender, education, habitation and income in a developed country (Germany), and on the Living Standards Measure (LSM) in a developing country (South Africa), was conducted. These countries were chosen as they are the homes of the researchers and because previous research showed that their cultures differed significantly (e.g., education, language, religion, and attitude to time and planning) which could be expected to influence attitudes towards social norms (Schnalke & Mason, 2014). Furthermore, the specific population profiles were chosen as these represent the consumers who patronize major retail organizations in the two countries (Chronis, 2012; Destatis, 2019; The World Bank Group, 2019). Data was collected via a questionnaire e-mailed to a consumer panel, covering both countries, which was provided by a commercial research firm.

### Respondents

#### South African sampling

The Living Standards Measure (LSM) categories 5 to 10 (predominantly urbanized) were selected as the South African (SA) study population (Chronis, 2012). South Africa's Gini coefficient (63.0 in 2015) is very high (The World Bank Group, 2019), indicating a relatively small proportion of the total population who can buy much more than basic products. Most of the lower LSM consumers would be living a hand-to-mouth existence, which supports the choice of targeting the upper LSM categories. Furthermore, LSMs 1 to 4 are 80-100% rural, having very low incomes and thus contributing little to a study of consumer purchasing.

Due to demographic movement up the LSM categories as South African consumers become wealthier, and for various technical reasons, LSMs have been criticized as being outdated (Langschmidt, 2017). The ES Socio-Economic Measures (SEM) are suggested in place of LSMs (Reidon, 2018) for analyzing the South /African market, but Muller (2017) shows that SEM and LSM use the same defining variables, and that the spread of categories is very similar, with the main difference being at segments 1 to 4. Since this research is aimed at the urbanized and wealthier consumers (segments 5 to 10), this difference at the lower end of the market is not relevant.

A further problem with using SEMs is that databases of respondents are not yet available, while databases of LSM 5-10 respondents are readily available. For these reasons it was decided to use LSMs to select the SA sample.

#### German sampling

The German Gini coefficient of 31.7 indicates a wide spread of wealth throughout the economy (The World Bank Group, 2019), with only 13,8% of income being spent on food, beverages, and tobacco (Destatis, 2019). Thus, most of the population would be able to shop for consumer products, and so a quota based on income, gender, and age (18+) representing the total German population was set as the sample. The proportions for income, gender and age, as shown in Table 3, therefore reflect both the total German population and the German sample.

#### Selection of samples

Based on the criteria mentioned above, samples for both Germany and SA were accessed from a commercial research company, which guaranteed the required number and spread of respondents. Quotas (that is, gender, age, and income for Germany and LSMs 5–10 for SA) ensured that the countries' populations were adequately represented. The quotas for LSMs 5-10 were adjusted to cater for the rapid changes in SA demographics (especially income and education) over the past 30 years since the ending of Apartheid (Mason, 2004; KANTAR, TNS, 2019). The segment proportions from the SEM categories, instead of the LSM proportions, were applied to identify the number of respondents required for each of LSM 5-10 to provide a sample of 500. The result is a quota profile for SA as presented in Table 1.

**Table 1:** Calculation of SA sample quota and achieved sample

	LSM 5	LSM 6	LSM 7	LSM 8	LSM 9	LSM 10	Total
LSM % of SA population	22	34	11	5	6	3	81
SEM % of SA population	10	9	9	7	6	7	48
SEM % applied to LSM 5-10	20.8	18.8	18.8	14.6	12.4	14.6	100%
Result: n of 5-10 sample	104	94	94	73	62	73	500

Since a self-selected sample (i.e., list members chose whether to respond or not) resulted, the method was non-probability sampling, potentially resulting in selection bias or non-response error (Bless, Higson-Smith & Sithole, 2013). However, Table 3 shows a reasonable spread of respondents, which indicates such bias or error as not a significant problem.

With a 95% level of significance, an allowed error of 0,1 (on a 7-point Likert type scale) and assuming a variance of 1, the t-distribution requires a sample size of 384 (excluding a correction factor) (Sekaran & Bougie, 2013). To allow for any unusable or rejected responses and to ensure a reasonable sample size in each sampling sub-category, a sample size of 500 for each country was set. The details of the actual, useable sample achieved were 548 for South Africa, 548 for Germany, and 1096 in total. The achieved samples (as shown in Table 3) were similar to actual population proportions and so can be considered as adequately representative of the German and SA populations.

**Data collection**

The questionnaire was developed from the extant literature, covering the ‘involvement’ construct and the ‘SNC’ construct. Statements with 7-point scaled responses, anchored with 7 = highly satisfied to 1 = highly dissatisfied, were developed from the academic literature for each construct as shown in Table 2. Also included in the questionnaire were the demographic characteristics of the sample, namely country, gender, age, habitation, education, and household income.

**Table 2:** Questionnaire derivation

Con-struct	Questions	Source
Communication involvement	I actively follow the progress of Covid-19 in the daily press, TV, social media, etc.	Zaichkowsky, 1985
	I often browse the Internet, news channels or the press for information on Covid-19	Qin et al., 2011
	While watching news of Covid-19 on TV, I use a cell phone or tablet to learn more about Covid-19	Vazquez et al., 2020
	I often talk about Covid-19 with my family and friends	Qin et al., 2011
Personal involvement	Covid-19 is an important part of, and impacts on, my current life	Mital, 1995; Qin et al., 2011
	Someone close to me (family, friend, colleague) has, or has had, Covid-19	Houston & Rothschild, 1978
	Understanding how Covid-19 is developing and effecting society is very important to me	Laurent & Kapferer, 1985
Social norm compliance	I perceive that Covid-19 can have a considerable negative risk to me	Laurent & Kapferer, 1985
	If more people followed society’s rules, the world would be a better place	Yang et al., 2020; Bizer et al., 2014 & adapted as per Svebak, Martin, & Holmen, 2004
	People should put as much emphasis on behaving considerately as they do on following written rules	
	People who do what society expects of them lead happier lives	
	Our society is built on unwritten rules that members need to follow	
	I am at ease only when everyone around me adheres to society’s norms	
	I always do my best to follow society’s rules	

The questionnaire was pilot tested with twelve SA consumers who matched the population criteria. This provided face validity following some minor changes to words, phrasing, and spelling, and to the explanation in the introduction. The questionnaire was translated into German and back-translated by the German researcher to ensure translational equivalence

(Hair, Babin, Money & Smouel, 2003). Then twelve German consumers pilot tested it, resulting in a few wording and phrasing changes. Thereafter an electronic pre-test was conducted live with 54 German and 58 SA consumers who matched the population criteria. The questionnaire proved to be understandable and acceptable. The e-mail, with an embedded link to the questionnaire, was then distributed to the opt-in consumer panel by the commercial research firm between 10 June and 16 June 2021. Using this opt-in panel ensured that the pre-set quotas were achieved, while keeping the cost relatively low. The disadvantages of this method, namely multiple participation, self-selection bias and practice bias, were avoided as each panel member only received one invitation and the software did not allow multiple participations. The invitation to participate did not mention the topic, thus avoiding self-selection bias, while practice bias was avoided since each respondent is only allowed to participate once in a two-month period (George, 2010). Furthermore, the socio-demographic characteristics of both panels are updated every year, ensuring up-to-date lists.

**Data analysis**

A total of 1134 responses were received (550 German and 585 SA). Quality and plausibility checks of the data checked for obviously poor responses, e.g., insufficient data for categorization, contradictory responses and insufficient time spent on doing the questionnaire, resulting in 38 responses being eliminated due to violating at least one of the criteria. This resulted in 548 SA and 548 German valid responses.

Then, using SPSS version 25, univariate descriptive statistics by country and total were calculated, as were the mean values and standard deviations for each question, by country, all of which are shown in Table 5.

**Validity and reliability**

To assess content validity, all questions were matched to the relevant variables to ensure the questionnaire assessed what it was intended to assess. Acceptable content validity was further supported by the fact that the questionnaire was based on other, validated research, as illustrated in Table 2 (Bless et al., 2013). A detailed deconstruction, analysis and discussion of the questionnaire was conducted by subject matter and statistical experts, and an initial pilot test and a live, electronic pre-test were conducted with respondents who matched the population criteria. This provided face and construct validity, which was also supported by the conducted exploratory factor analysis, resulting in no significant changes being needed.

Quality and plausibility checks of the full data set were acceptable, and the final sample was acceptably representative of the two populations. Finally, Cronbach Coefficient Alpha was used to indicate the internal consistency of the questionnaire (Sekaran & Bougie, 2013).

**Findings and Discussion**

**Findings**

First, the sample profile is presented, then descriptive statistics for each construct and its questions are tabulated, and finally an analysis of the four research objectives is explained.

**Demographic Profile of Respondents**

Table 3 reflects the profile of the 1096 useable responses, split by country, gender, age, where respondent lives, education, and monthly household net income.

**Table 3:** Demographic profile of respondents

Dimension	Category	Total		South Africa		Germany	
		n	%	n	%	n	%
<b>Gender</b>	Female	602	54.9	320	58.4	282	51.5
	Male	494	45.1	228	41.6	266	48.5
<b>Age</b>	18-24	135	12.3	86	15.7	49	8.9
	25-34	337	30.7	253	46.2	84	15.3
	35-49	281	25.6	160	29.2	121	22.1
	50-59	190	17.3	39	7.1	151	27.6
	60+	153	14.0	10	1.8	143	26.1
<b>Habitation</b>	Metro (250 000 +)	423	38.6	261	47.6	162	29.6
	City/large town (40000-249 999)	349	31.8	194	35.4	155	28.3
	Small town/village (5000-39999)	218	19.9	74	13.5	144	26.3
	Rural (< 5000 people)	106	9.7	19	3.5	87	15.9
<b>Education</b>	None, some, or all primary	97	8.9	2	0.4	95	17.3
	Some high school	235	21.4	38	6.9	197	35.9
	High school/Matric	282	25.7	165	30.1	117	21.4
	Technikon	189	17.2	123	22.4	66	12.0
	University degree	282	25.7	211	38.5	71	13.0
	Other post matric	11	1.0	9	1.6	2	0.4
<b>Monthly household net income</b>	0 – R8 000/ 0-€1300	219	20.0	113	20.6	106	19.3
	R8 001 – 18 000/€1300-2000	298	27.2	179	32.7	119	21.7
	R18 001 – 37 000/€2001-3200	315	28.7	156	28.5	159	29.0
	R37001 – 63 000/€3201-6000	206	18.8	73	13.3	133	24.3
	More than R63000/€6000	58	5.3	27	4.9	31	5.7
<b>Total</b>		1096	100.0	548	100.0	548	100.0

A reasonable distribution of the sample across both Germany and SA, for all demographic categories, was achieved. Since the German sample was predetermined according to the German population, the German sample is naturally representative. The SA sample reflects the LSM groups as shown in Table 1, but is not identical, showing a slightly higher proportion of females (58.4%) than the SA population (51%) (StatsSA 2020). This is explained by the probability that shopping is more often done by females, especially in emerging countries - Docrat (2007) found females account for 59% of mall shoppers in SA - and by the fact that LSMs 6, 7, 8 and 9 are biased towards females (Living Standards Measure, 2017).

**Factor analysis and Validity**

Exploratory factor analysis without pre-setting the number of factors, based on principal component and Varimax with Kaiser Normalization and an extraction base on Eigenvalue > 1 and rotation converged in 6 iterations, was used to check that the constructs and questions, as shown in Table 2, are accurate representations of the issues being examined in this study. The results of this EFA are

shown in Table 4. Although the literature shown in Table 2 suggests separate constructs of Personal involvement and Communication involvement, our factor analysis had all these questions loading onto one construct, namely Involvement. The statements representing each of these two constructs (Involvement and SNC) loaded perfectly, indicating that these statements perfectly measured what they were supposed to measure. Kaiser-Meyer-Olkin showed a good value of 0.914 with a highly significant ( $p < 0.001$ ) Bartlett's Test of Sphericity.

**Table 4:** Exploratory factor analysis

Con-structs	Questions	Factor loadings	
Covid 19 involvement	I actively follow the progress of Covid-19 in the daily press, TV, social media, etc.	0,741	0,257
	I often browse the Internet, news channels or press for information on Covid-19	0,796	0,137
	While watching news of Covid-19 on TV, I sometimes simultaneously use a cell phone or tablet to learn more about Covid-19	0,673	0,085
	I often talk about Covid-19 with my family and friends	0,784	0,170
	Covid-19 is an important part of, and impacts on, my current life	0,726	0,193
	There are people close to me (family/friends/ colleagues) who have, or had, Covid-19	0,469	-0,001
	Understanding how Covid-19 is developing and effecting society is important to me	0,789	0,250
	I perceive Covid-19 can have a considerable negative risk to me	0,663	0,206
Social norm compliance	If more people followed society's rules, the world would be a better place	0,166	0,846
	People should put as much emphasis on behaving considerately as they do on following written	0,292	0,669
	People who do what society expects of them lead happier lives	0,109	0,678
	Our society is built on unwritten rules that members need to follow	0,130	0,745
	I am at ease only when everyone around me is adhering to society's norms	0,251	0,731
	I always do my best to follow society's rules	0,196	0,842

**Reliability**

Cronbach's Coefficient Alpha was used to assess reliability, with a coefficient of 0.7 or higher being considered reliable (Katranci, 2015). The coefficient of 0.87 for 'Covid-19 involvement' and the coefficient of 0.874 for 'SNC' are both above the suggested 0.7, and so both dimensions can be considered as reliable measures.

**Descriptive statistics**

Means and standard deviations for each variable construct and the associated statements, for Germany, South Africa, and the total sample, are provided in Table 5.



**Table 5:** Descriptive statistics (N: SA = 548; Germany = 548; Total = 1096)

Construct	Mean	Std dev	Statements	Country	Mean	Std. Dev	Total mean	
Covid-19 involvement	SA	SA	I actively follow the progress of Covid-19 in the daily press, TV, social media, etc.	SA	5.57	1.655	5.39	
	5.54	1.256		GER	5.21	1.687		
	Ger	Ger	I often browse the Internet, news channels or the press for information on Covid-19	SA	5.48	1.700	4.93	
				4.45	1.283	GER		4.37
	Total	Total		While watching news of Covid-19 on TV, I sometimes simultaneously use a cell phone or tablet to learn more about Covid	SA	5.21	1.809	4.51
					4.99	1.382	GER	
	Social norm compliance	SA	SA	I often talk about Covid-19 with my family and friends	SA	5.78	1.502	5.36
					5.27	1.306	GER	
		Ger	Ger	Covid-19 is an important part of, and impacts on, my current life	SA	5.67	1.623	5.14
					4.86	1.209	GER	
		Total	Total	There are people close to me (family, friends, colleagues) who have, or have had, Covid-19	SA	4.99	2.329	4.15
					5.06	1.274	GER	
		SA	SA	Understanding how Covid-19 is developing and effecting society is important to me	SA	6.00	1.446	5.53
					5.27	1.306	GER	
Ger	Ger	I perceive Covid-19 can have a considerable negative risk to me	SA	5.64	1.622	4.95		
			4.86	1.209	GER		4.26	1.816
Total	Total	If more people followed society's rules, the world would be a better place	SA	5.48	1.671	5.31		
			5.06	1.274	GER		5.13	1.584
SA	SA	People should put as much emphasis on behaving considerately as they do on following written	SA	5.75	1.428	5.57		
			5.27	1.306	GER		5.40	1.518
Ger	Ger	People who do what society expects of them lead happier lives	SA	4.64	1.987	4.38		
			4.86	1.209	GER		4.12	1.575
Total	Total	Our society is built on unwritten rules that members need to follow	SA	5.21	1.606	5.02		
			5.06	1.274	GER		4.83	1.463
SA	SA	I am at ease only when everyone around me is adhering to society's norms	SA	5.13	1.709	4.86		
			5.27	1.306	GER		4.59	1.602
Ger	Ger	I always do my best to follow society's rules	SA	5.39	1.630	5.23		
			4.86	1.209	GER		5.07	1.517

**Discussion**

A brief review of the results obtained from this study is presented below, along with a discussion on how these results compare with those of previous studies, mostly from elsewhere in the world. This discussion is structured according to the four main objectives.

**Objective 1a – Is Involvement with Covid 19 influenced by demographics?**

Based on parametric data, the differences between groups are tested by using t-test (2 groups) or ANOVA (3 and more groups) (Pallant, 2007). The findings shown in Table 6 indicate that respondents who are highly involved with Covid-19 are more likely to be female, younger, well-educated, and living in a more built-up area. Education plays the strongest role in influencing the level of involvement, whereas income appears to have no influence. This tends to support the findings of Aschwanden et al. (2020), who found that women and those with higher education reported greater concerns about Covid-19 (similar to Involvement), but those with higher income showed more concern about Covid-19 which is contrary to our finding.

**Table 6:** Level of involvement with Covid-19 by country and demographics

<i>Demo-graphic</i>	<i>Category</i>	<i>N</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Sig (2 tailed)</i> <i>p</i>	<i>Effect size</i> <i>Cohen's d</i>
<b>Country</b>	South Africa	548	5.54	1.256	<0,001	0,864
	Germany	548	4.45	1.283		
<b>Gender</b>	Male	494	4,83	1,416	<0,001	0,212
	Female	602	5,13	1,341		
						<b><i>Eta square</i></b>
<b>Age</b>	18-24	135	5,07	1,324	<0.001	0.054
	25-34	337	5,26	1,337		
	35-49	281	5,19	1,356		
	50-64	190	4,69	1,374		
	65 +	153	4,37	1,339		
<b>Income ('000s)-</b>	< R8/<1,3€	219	4,77	1,522	0.116	
	R8-18/1,3-2€	298	5,02	1,375		
	R18-37/2-3,2€	315	5,07	1,385		
<b>SA=Rand Ger=Euro</b>	R37-63/3,2<6€	206	5,03	1,175		
	R63+/6€ +	58	5,13	1,489		
<b>Education</b>	No formal schooling	5	3,80	2,513	<0.001	0.091
	Some/all primary	92	4,43	1,293		
	Some high school	235	4,47	1,466		
	Matriculation	282	4,95	1,314		
	Technikon/tech dip	189	5,22	1,285		
	University degree	282	5,49	1,217		
	Other post matric	11	6,05	0,983		
<b>Habitation</b>	Metro (250 000+)	423	5,16	1,373	<0.001	0.019
	City/large town (40000-249 999)	349	5,03	1,376		
	Small town/village (5000-39999)	218	4,83	1,381		
	Rural (< 5000 people)	106	4,53	1,321		

Thus, it can be concluded that some demographic factors do influence the level of involvement with Covid-19.

**Objective 1b – Is Involvement influenced by country?**

As shown in Table 6, South Africa’s perceived level of involvement with Covid-19 is considerably higher than that of Germany. These results are statistically highly significant with a very high effect, and so it can be concluded that the variable ‘country of residence’ does have an influence on the level of involvement with Covid-19. Thus, Objective 1b has been met, but why inhabitants of a less developed country are more involved with Covid-19 than those in a developed country is not clear from this study, especially since the only previous research on involvement with Covid-19 and country of residence found that there was no significant difference in buying behavior during Covid-19 between Germany and SA (Corbishley et al., 2022). Further research may be needed to obtain a more in-depth understanding of this phenomenon.

**Objective 2a - Is SNC influenced by demographic factors?**

The findings shown in Table 7 indicate that SNC is almost totally uninfluenced by demographic factors, which mostly confirms the finding of Yang et al. (2020), who found that education level and income did not influence their model that included Covid-19 involvement and SNC. However, in this study education has a slight effect, with the more educated tending to be more socially norm compliant than the lesser educated, which partially agrees with the more conformist behavior which Naeem (2021) found developed during the pandemic. However, this seems counter-intuitive, as it could be expected that the higher the education, the lower the need to conform to social norms due to greater confidence in interpreting and understanding information.

**Table 7:** Level of SNC by country and demographics

<i>Demo-graphic</i>	<i>Category</i>	<i>N</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Sig (2 tailed)</i> <i>p</i>	<i>Effect size</i> <i>Cohen's d</i>
<b>Country</b>	South Africa	548	5.27	1.306	<0,001	0,352
	Germany	548	4.86	1.209		
<b>Gender</b>	Male	494	4,98	1,3374	0.054	
	Female	602	5,13	1,2171		
<i>Eta square</i>						
<b>Age</b>	18-24	135	4,81	1,3334	0.052	
	25-34	337	5,06	1,2609		
	35-49	281	5,16	1,3051		
	50-64	190	5,00	1,2848		
	65 +	153	5,20	1,1516		
<b>Income ('000s-Rand - SA Euro - Ger)</b>	< R8/<1,3€	219	5,00	1,4350	0.83	
	R8-18/1,3-2€	298	5,03	1,2375		
	R18-37/2-3,2€	315	5,08	1,2699		
	R37-63/3,2<6€	206	5,13	1,1551		
	R63+/6€ +	58	5,11	1,2710		
<b>Education</b>	No formal schooling	5	3,80	2,513	0.043	0.012
	Some/all primary	92	4,43	1,293		
	Some high school	235	4,47	1,466		
	Matriculation	282	4,95	1,314		
	Technikon/tech dip	189	5,22	1,285		
	University degree	282	5,49	1,217		
	Other post matric	11	6,05	0,983		
<b>Habitation</b>	Metro (250 000+)	423	5,16	1,373	0.065	
	City/large town (40000-249 999)	349	5,03	1,376		
	Small town/village (5000-39999)	218	4,83	1,381		
	Rural (< 5000 people)	106	4,53	1,321		

Thus, it can mostly be concluded that SNC is not strongly influenced by demographic factors.

**Objective 2b - Is SNC influenced by country?**

Similar to Involvement with Covid-19, Table 7 shows that South Africa’s perceived level of SNC (5.27) is higher than that of Germany (4.86), this result being statistically significantly with a small to medium effect. Therefore, it can also be concluded that level of SNC is influenced by country, although the only research found on involvement with Covid-19 and country of residence between Germany and SA showed that there was no significant difference in buying behavior during Covid-19 (Corbishley et al., 2022). Both involvement with Covid-19 and SNC, from our research, seem to be more heavily influenced by country, with higher means for both involvement and SNC in South Africa than in Germany, but no obvious reason for this is apparent. Therefore, further in-depth research is required to understand this discrepancy.

**Objective 3 – Is there a relationship between Involvement and SNC?**

There is a highly significant difference in SNC between those respondents scoring high and low on involvement, with a very high difference in means of 1.342. There is also a highly significant difference in level of involvement between those respondents scoring high and low on SNC, as is shown by the high difference in means of 1.237. The effect size of these differences is also very high, as measured by Cohen’s D of 1.103 and 0.940 respectively. These findings are shown in Table 8.

**Table 8:** Relationship between Involvement and SNC

	<b>Level</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>t-test for equality of means</b>				
					<b>T</b>	<b>df</b>	<b>Sig (2 tail)</b>	<b>Mean diff</b>	<b>Cohen’s D</b>
<b>SNC</b>	Hi involv	740	5.378	1.187	12.551	895	<0.001	1.342	1.103
	Lo involv	157	4.036	1.348					
<b>Involvement</b>	Hi SNC	782	5.299	1.238	9.954	911	<0.001	1.237	0.940
	Lo SNC	131	4.062	1.709					

Regression analysis is a suitable instrument to analyze the influence of one or more independent variable on one dependent variable (Backhaus, Erichson, Gensler, Weiber, & Weiber. 2021). Regression analyses were conducted, first with involvement as independent and SNC as dependent variables, and then with SNC as independent and involvement as dependent variables. Autocorrelation (Durban-Watson Test 1.957 and 1.740) and multicollinearity (both tolerance >0.5), heteroskedasticity (plot of residual versus fitted showed no typical funnel pattern) and normally distributed error terms (QQ plots showing satisfactory distributions) were tested (Backhaus et al., 2021). The results of the regression analysis are show in Table 9.

**Table 9:** Regression analysis – Involvement and SNC

Independent variable	Dependent variable	R <sup>2</sup>	Sig	Beta	Sig
Involvement	SNC	21.2%	<0.001	0.424	<0.001
SNC	Involvement	21.2%	<0.001	0.499	<0.001

For the analysis with SNC as dependent variable, 21% of the difference in SNC can be explained by Involvement with Covid-19. This finding is highly significant - for each point on the 1 to 7 scale with which involvement rises, the SNC level rises by 0,42 points, as shown by the beta score.

For the analysis with Involvement as the dependent variable, 21% of the variance in Involvement can be explained by increases in SNC. This regression was also highly significant. The influence is quite high. For each point on the 1 to 7 scale that SNC rises, involvement rises by nearly 0,5 points.

Thus, it can be concluded that Involvement with Covid-19 has a strong influence on the level of SNC exhibited by respondents, and vice versa – having a high level of SNC tends to also influence the level of Involvement with Covid-19. The strengths of the influences are similar.

The fact that there is such a strong and significant relationship between involvement with Covid-19 and SNC has an important implication for health managers and policy makers. For example, to encourage social support for, and adherence to, social behavior such as social distancing, mask wearing and hand washing to limit the spread of the disease, our findings suggest:

- i. an increase in knowledge about, and awareness of, Covid-19 facts which should increase involvement, and
- ii. the promotion and notification of how other members of society, especially leaders and celebrities, are adhering to the norms which should help to increase social norm compliance

Following these analyses, correlation and regression analyses were also run for the various demographic factors. The tests of the requirements for the regression analyses reported in Tables 10 and 11 showed no serious violations that prevent the use of the regression analyses. These findings are presented under Objectives 4 and 5.

**Objective 4: Is relationship between Involvement and SNC influenced by demographics?**

Regarding gender, Table 10 illustrates that correlation and both regressions are stronger for men than women, indicating that men appear to be more influenced by being involved with Covid-19 and by their social contacts.

Regarding the other demographics, their categories were amalgamated into two groups each because otherwise each category would have been too small to provide reliable analyses.

Considering the age demographic, the correlation and both regressions were stronger for the younger group, indicating that the young are more influenced by their peers than are older people. This supports the findings of Aschwanden et al. (2020) that younger people have more concerns about Covid-19, Garbe et al. (2020) that stockpiling increased with age, and Koch et al. (2020) that younger consumers purchased more hedonistically and could be expected to be more involved with Covid-19 due to their greater use of social media. Of interest is the fact that for both groups (young and old) involvement with Covid-19 had a higher influence on SNC, than did SNC on involvement.

The higher income group showed stronger correlations and regressions than the lower income group. This raises the question as to whether higher income leads to more independence and enables such people to choose to become more involved. The education demographic reflected no significant difference in correlation between the higher and lower education groups, as they were ‘contra-directional’. In other words, the influence of SNC on Covid-19 involvement was higher for the low education group, whereas the influence of Covid-19 involvement on SNC was higher for higher education group. This implies that the lower the education, the more likely to be influenced by peers, while the higher the education the more likely they are to choose to take an interest in, and become involved with, Covid-19.

**Table 10:** Correlations and regression analyses

Demo-graphic	Category	Pearson Correlation		Regression							
				Involvement→SNC				SNC→Involvement			
		Coef	Sig	R <sup>2</sup>	Sig	beta	Sig	R <sup>2</sup>	Sig	beta	Sig
<b>Gender</b>	Male	0,479	< 0,001	23,0%	< 0,001	0.453	<0.001	23,0%	< 0,001	0.507	<0.001
	Female	0,436	< 0,001	19,0%	< 0,001	0.396	<0.001	19,0%	< 0,001	0.481	<0.001
<b>Age</b>	18-49	0.506	< 0,001	25.6%	< 0,001	0.524	<0.001	25,6%	< 0,001	0.488	<0.001
	50+	0.405	< 0,001	16.4%	< 0,001	0.450	<0.001	16,4%	< 0,001	0.364	<0.001
<b>Income</b>	→ R18000/ €2000	0.431	< 0,001	18.6%	< 0,001	0.470	<0.001	18.6%	< 0,001	0.395	<0.001
	R18000/ €2000 +	0.439	< 0,001	23.9%	< 0,001	0.526	<0.001	23.9%	< 0,001	0.454	<0.001
<b>Education</b>	→ Some high school	0.463	< 0,001	21.5%	< 0,001	0.404	<0.001	21.5%	< 0,001	0.531	<0.001
	High school & above	0.461	< 0,001	21.3%	< 0,001	0.458	<0.001	21.3%	< 0,001	0.465	<0.001
<b>Habitation</b>	City/town/village/rural	0.464	< 0,001	21.5%	< 0,001	0.438	<0.001	21.5%	< 0,001	0.492	<0.001
	Metro (250000 +)	0.446	< 0,001	19.8%	< 0,001	0.398	<0.001	19.8%	< 0,001	0.498	<0.001

The correlation showed no difference between those living in a metropolitan area and those living in smaller settlements, nor was there any difference between smaller and bigger habitats in the influence of SNC on involvement. Of interest is that for both groups, the influence of SNC was higher on involvement than was the influence of involvement on SNC.

**Objective 5 –Is relationship between Involvement and SNC influenced by country?**

As shown in Table 11, the correlations between Covid-19 involvement and SNC are very similar for the two countries, with South Africa’s correlation being slightly larger. The statistically significant regressions show that the influence of involvement in Covid-19 on SNC is slightly greater in Germany, while the influence of SNC on involvement in Covid-19 is slightly higher in South Africa. However, the differences between the countries were not statistically significant, and so it can be concluded that the relationship between involvement and SNC is not influenced by country of residence. This finding supports the previous studies of Garbe et al. (2020) and Corbishley et al. (2022).

**Table 11:** Correlations and regressions by country

Country	Pearson Correlation		Regression							
			involvement→SNC				SNC→involvement			
	Coef	Sig	R <sup>2</sup>	Sig	beta	Sig	R <sup>2</sup>	Sig	beta	Sig
South Africa	0.443	< 0,001	19.6%	< 0,001	0.426	< 0,001	19.6%	< 0,001	0.461	< 0,001
Germany	0.432	< 0,001	18.7%	< 0,001	0.458	< 0,001	18.7%	< 0,001	0.408	< 0,001

Since the correlations and regression statistics are so similar, and significant, for the two countries, it can be concluded that the relationship between Involvement in Covid-19 and SNC do not differ between the two countries.

**Conclusions**

In summary, the study has shown that gender, age, education, and habitation can influence the level of involvement with Covid-19, as can the country of residence, with South Africans showing greater involvement than Germans. However, the study showed that SNC is uninfluenced by demographics, but, as with involvement, does differ according to country, with South Africans again showing higher levels of SNC than Germans.

Regarding the relationship between the two main variables, it was found that involvement with Covid-19 strongly influences SNC and vice versa, and that demographics, apart from habitation, also significantly influence the relationship between these two variables. Finally, the relationship between the two variables do not differ significantly between the two countries.

This study has contributed to new knowledge by providing a better understanding of the interaction of consumers’ involvement with Covid-19 and SNC as components of consumer behavior. This is important as societies’ ability to cope with the pandemic has been partly dependent on citizens adhering to the protocols that scientists, medical bodies, and governments have instituted to minimize infections, serious illness, hospitalizations and deaths. During the pandemic retailers have been on the frontline of implementing such protocols and so understand such issues, and how they are influenced by consumer demographics, is important. These findings also add to the body of knowledge as little research had been done into the key variables in developing countries, and especially regarding developed versus developing countries. Research such as this is essential to understand these changing consumer behavioral actions which could influence future marketing practice.

This study has been delimited to South Africa and Germany and so the first limitation of these findings is that they cannot be extrapolated to other developed or developing countries without great care.

Second, the SA sample was delimited to LSMs 5-10, thus excluding an important component of the SA population. These lower LSMs may be increasing in urbanization and so becoming wealthier and aspiring to the consumption characteristics of the higher categories. Although this trend may be starting, the majority of LSM 1-4 consumers probably still focus their consumption and buying on essential products which are not significantly influenced by normative influences. Thus, it is not likely that including LSMs 1-4 would have provided significantly different results. Nevertheless, a further study into LSMs 1-4 purchasing patterns during the Covid-19 pandemic would be worthwhile to confirm this assumption.

Third, a qualitative study could help to identify and to better understand these changing consumer behavior patterns and to provide a more in-depth understanding of why consumers become more or less involved with a pandemic such as COVID-19 and how such involvement influences or is influenced by social norms. those identified by this study.

Fourth, several gaps in knowledge, or anomalies, were identified by this study and further research into these issues, as mentioned in the discussion section, are warranted, namely:

- i. Why are the South African consumers more involved with Covid-19, and more socially norm compliant, than the German consumers?
- ii. Why do the more educated consumers tend to be more socially norm compliant than the lesser educated?
- iii. Why are the higher income consumers more Involved with Covid-19 and more socially norm compliant than the lower income group?

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