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Effects of risk perceptions and contextual support on entrepreneurial intention: Evidence from the COVID-19 Era

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Abstract

This paper contributes to the entrepreneurial intention (EI) literature by applying an extension of the theory of planned behaviour (TPB) in an under-researched Zambian context. Specifically, this study examines the influence of risk perceptions and contextual support during COVID-19 on the entrepreneurial intentions (EI) of university students. To achieve this aim, the study employed a quantitative correlational research design to collect data from public and private university students in Copperbelt, Zambia. The study collected data from 401 undergraduate students in Zambia's second-largest city, Kitwe. Despite the sample emanating from only one city, the findings imply that risk perceptions and contextual support together with the theory of planned behaviour (TPB) elements effectively predict Zambian undergraduates' entrepreneurial intention during COVID-19. This has many training and entrepreneurial support implications for educators, policymakers and scholars.

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1. Introduction

The COVID-19 pandemic has reminded developing countries that we live in a rapidly changing and uncertain world. Although Africa's youth unemployment rate trends problematically compared to other regions (ILO, 2021), the majority of Africa's youth work informally. Prior research has shown that encouraging individuals through times of crisis is vital for the growth of entrepreneurial activities (Belitski *et al*., 2022; Noelia and Rosalia, 2020) [6, 35]. In this context, light needs to be shed on how to boost and support entrepreneurial activity in times of crisis.

The Zambia Statistical Agency (Zamstats) indicates that while overall unemployment in Zambia was 12.5% in 2021, youth unemployment levels were even higher at 17.4% Zamstats, 2021). The youth unemployment bracket of 15-34 years comprises 60% of the unemployed and this poses a significant challenge to national productivity (Haabazoka *et al*., 2016) [14]. Just like in many other developing countries, unemployment in Zambia affects both university/college graduates and non-graduates alike (Mwiya and Chanda, 2014) [31]. 20.8% of university and college graduates are usually still unemployed.

Increased enrolment in higher learning institutions has resulted in more graduates entering the labour market than available job opportunities, resulting in a rising number of educated youths experiencing unemployment. In the recent decade, people all around the world have been increasingly interested in pursuing and strengthening measures to promote and support the notion of entrepreneurship as a viable alternative to wage employment.

In Zambia, from January 2020 to March 2022, there were 316,088 confirmed cases of COVID-19 with 3,964 deaths, reported to the World Health Organisation (WHO, 2022). According to the United Nations Development Programme (UNDP), the number of employees in various sectors during the COVID-19 outbreak was reduced (UNDP, 2020).

SINCE face masks enabled companies and businesses to continue operating in Zambia during the COVID-19 pandemic, entrepreneurs, like tailors, saw the COVID-19 outbreak as an opportunity to grow their enterprises by increasing their work outputs and products to include masks. Thus, opportunity spotting during crises can enable some entrepreneurs to thrive.

Entrepreneurial intention is a well-established field of research within the realm of entrepreneurship. Entrepreneurship is constantly associated with economic growth and innovation (Szirmai, A., Naudé, W. and Goedhuys, 2011; Zhao, 2005) [42, 46], and it is generally acknowledged that it contributes to innovation, recovery, competition, and job creation in economies (Carree and Thurik, 2010; Hessels and Van Stel, 2011, Mwiya *et al*., 2017) [8, 33, 15]. This is attributed to the reason that new businesses introduce new ideas, technologies, and products to society, hastening change and increasing wealth (Noelia and Rosalia, 2020; Zhao, 2005) [35, 46].

Entrepreneurship encourages self-reliance and innovative solutions to problems. An entrepreneur is described as someone who, in the face of risk and uncertainty, establishes a new business to generate profit and growth by identifying significant opportunities and combining the resources required to capitalize on them (Scarborough, 2016) [41].

Entrepreneurs start new firms, which in turn create employment, enhance competition, and maybe even increase productivity as a result of technological advancements (Szirmai, A., Naudé, W. and Goedhuys, 2011) [42]. As a result, high levels of measured entrepreneurship will immediately translate into high levels of economic growth. This contributes to the creation of jobs and fosters innovation and competitiveness in any economy by giving consumers more options (Mwiya *et al*., 2017) [33]. Therefore, there is a need for every country to continuously consider how to promote entrepreneurship as well as graduate entrepreneurship (Karimi *et al*., 2016; Mwiya, 2014; Oosterbeek *et al*., 2010) [20, 31, 34].

There have been numerous journal articles that have established various factors that contribute to the overall Entrepreneurial Intention (EI) of students using the Theory of Planned Behaviour (TPB) and Entrepreneurial Event Model (EEM). Prior research also mainly focused on the decision to start up a business in normal times (Van Gelderen *et al*., 2008; Karimi *et al*., 2016) [13, 20], yet there is a shortage of studies exploring entrepreneurial intentions during a crisis like a pandemic. This study sought to test an integrated model of TPB together with additional variables of risk perception, contextual support and COVID-19 perceptions in an under-researched Zambian context. Considering the foregoing gaps, this research provides insight into the COVID-19 crisis' implications, as well as an understanding of how changes in any context, perceptions, and psychologies of individuals owing to the crisis have influenced entrepreneurial intention. The rest of the paper is outlined as follows: the next section reviews the literature and develops hypotheses before research methods are highlighted. Thereafter, results are reported and discussed concerning both the conceptual model and prior empirical studies.

2. Literature review and hypotheses

This section includes several perspectives from recent and ancient times on the stages/steps/process of entrepreneurial intentions and the factors that lead to them. Analysing human influences from several aspects of entrepreneurial intentions, such as contextual support, personality traits, risk tolerance, entrepreneurial alertness, and many others, helps in understanding the entrepreneurial intention process (Karabulut, 2016; Liu *et al*., 2019; Sahoo and Panda, 2019) [19, 28, 40]. Attitude conceptualisation underpins intention models (Ajzen, 1991; Karabulut, 2016) [1, 19]. An attitude precedes an intention. The desire is both a direct antecedent of the intention and a complete mediator between attitude and intention. Entrepreneurial intentions are usually followed by the formulation of a business plan, the acquisition of resources, and the behaviour directed by objectives (Karabulut, 2016) [19]. Entrepreneurial intentions are also influenced by entrepreneurs' visions, dreams, and emotions. Entrepreneurship begins with entrepreneurial ambitions.

Recent systematic literature reviews (Kuckertz and Brändle, 2022; Akula and Singh, 2021) [22, 2] reveal that the handful of empirical studies on Covid 19 and entrepreneurship focus on either the uncertainty perspective, the opportunity perspective or indeed the resilience perspective (none of the recent studies embraces all the three perspectives). Moreover, out of 34 studies globally only 2 are from Africa in Nigeria and South Africa. Additionally, most of these studies were based on hastily assembled qualitative research lacking generalisability to other contexts (Kuckertz and Brändle, 2022; Akula and Singh, 2021) [22, 2]. These systematic literature reviews suggest a need for more theoretically grounded studies to increase our understanding of the impact of a crisis on entrepreneurship. Multiple journal articles have established various aspects that contribute to students' overall EI while applying the TPB and EEM. Scholars are quick to point out that because the environmental settings in developing and developed nations differ, so will the entrepreneurial intention and background. All of these studies have limitations when it comes to generalizing study findings to other contexts, particularly in developing countries. While just a few African countries have been investigated, it is important to note that African countries are not homogeneous; they do have significant socioeconomic and cultural differences. This study focuses on the Zambian context.

2.1. Theoretical Background

This section focuses on the theoretical underpinnings and contexts of this study's conceptualisation, highlighting the most relevant and underpinning theories.

2.1.1. Theory of planned behaviour

Previous studies on intention have immensely benefited from applying the theory of planned behaviour i.e. TPB (Ajzen, 1991) [1]. TPB suggests that there are three immediate antecedents to a certain course of action: personal attitude, subjective norms and perceived behavioural control towards the behaviour. Firstly, attitude toward the behaviour is the degree to which a person has a favourable or unfavourable evaluation of the behaviour in question (Ajzen, 1991) [1]. Secondly, subjective norm entails the perceived social pressure or approval to perform or not to perform a particular behaviour (Ajzen, 1991) [1]. The third antecedent of intention is the degree of perceived behavioural control which refers to the perceived ease or difficulty of performing the behaviour and it is assumed to reflect experience as well as anticipated impediments and obstacles (Ajzen, 1991) [1].

The TPB has been empirically verified and validated in

various research since its introduction. These studies include those that focused on the intention to start a business (Arrighetti *et al*., 2016a; Karimi *et al*., 2014; Krichen and Chaabouni, 2022; Krueger *et al*., 2000; Solesvik *et al*., 2012) [4, 20, 21]. There have also been a few studies on EI among university students in African countries using TPB. Very few studies utilising TPB, if any, have incorporated crises and contextual factors.

2.1.2. Entrepreneurial event model

The entrepreneurial event model (EEM) is one of the most common models in the literature on entrepreneurship and consists of three key constructs that influence someone's intention to start a business. These are perceived desirability, propensity to act and perceived feasibility. The perceived desirability is the willingness, admiration and favourable attitude someone has towards starting their business. Similarly, the propensity to act is the inclination to act and the preferences of a person to start a new company through appropriate measures. Lastly, perceived feasibility is linked to a person's ability, competencies and the probability of stakeholder support

2.1.3. The contexts of intentionality

According to, intentionality can be defined as a state of mind directing a person's attention, experience and action towards a specific goal or a path to achieve something, model, developed based on interviews with novice and experienced entrepreneurs, attempts to explain and predict entrepreneurial behaviour. Bird argues that an individual's intention determines whether a venture will be launched or not. It also determines the form and direction of an organisation at its inception.

Bird explains that her model can be applied to both the creation and development of new ventures. Firstly, she posits that both personal and contextual factors influence the intentionality process. Personal factors include experience, history, personality and abilities while contextual factors include social, political and economic variables as well as market changes and regulatory framework changes. As a result of these personal and contextual factors, intentionality is created. Secondly, she argues that personal and contextual factors influence the person's rational, analytical thinking (cause and effect thinking) and intuitive, holistic thinking which structure intention and the consequent actions.

2.1.4. Institutional theory

Institutional theory is one of the main theories underpinning entrepreneurial studies as well as organisational and management research. The focus of institutional theory is on how various groups may strengthen their influence and legitimacy by abiding by the rules and standards of the institutional environment. Thus, rather than concentrating exclusively on efficiency-seeking behaviour, institutional theory is concerned with the regulatory, social, and cultural aspects that promote the survival and legitimacy of an organisation. Beyond the entrepreneur's mind, there is a general environment that establishes laws, norms, standards, support and practices that shape an economy, its culture, and its policies encouraging some behaviours and discouraging other behaviours.

Entrepreneurship studies have found particular benefit in the application of institutional theory empirically examine institutional theory in the setting of business markets. In China, investigate the role of institutional forces in e-business transformation intention.

2.1.5. Prospect Theory

Prospect theory was originally developed as a theory of risky choice. Prospect theory is a model of decision-making under uncertain circumstances (Kahneman and Tversky, 1979). Its key benefit is that it provides insight into why individuals frequently make suboptimal choices. In essence, the idea contends that every choice involves two stages. The choices under evaluation go through an editing process first. To focus on the distinctions between occurrences, this strategy may include deleting highly unlikely events or presenting extremely likely events as certain, it may also involve eliminating any aspects that numerous events share in common. In the second stage, a decision is taken after the possibilities have been assessed based on the subjective values ascribed to each result. Prospect theory is particularly effective at explaining when individuals are likely to make poor decisions since it assigns probabilities and values to each outcome.

2.2. Hypotheses development and conceptual framework

This section presents the development of the hypotheses beginning with entrepreneurial risk perceptions, then contextual support, COVID-19 perceptions, attitudes, perceived behavioural control and finally actual entrepreneurial behaviour and how they may be related to entrepreneurial intention.

2.2.1. Entrepreneurial risk perceptions and business start-Up intention

Entrepreneurial risk perception may be defined as a decision maker's evaluation of the risks associated with engaging in entrepreneurial behaviour. This involves a person's evaluation of the expectation and probabilistic estimations of the extent and controllability of risks, such as when establishing a business, as well as confidence in such predictions (Barbosa *et al*., 2007; Karabulut, 2016) [5, 19]. Risk perception is one of the key factors in the decision-making process. Prior studies indicate that entrepreneurial risk perceptions may positively or negatively affect entrepreneurial intentions during a crisis like the COVID-19 pandemic (Krichen and Chaabouni, 2022) [21]. People's risk perceptions are positive when they view the option of starting their own business as a viable chance to pursue during a crisis or when they think they would be losing out on a fantastic opportunity if they do not start their firm. Therefore, the first hypothesis is as follows:

H1: Risk perceptions positively affect entrepreneurial intentions during the COVID-19 pandemic

2.2.2. Contextual support factors and business start-Up Intention

Contextual variables can either encourage or deter the formation of new businesses since a university student evaluates the consequences and benefits of entrepreneurial opportunities. The entrepreneurial literature has examined a wide range of contextual factors (e.g. family support, educational support, structural support) related to the formation of new businesses, such as ecosystem impediments and incentives, availability of resources, support systems, and the unemployment rate (Malecki, 2018; Parvaneh Gelard, 2011; Sahoo and Panda, 2019) [29, 38, 40]. Previous studies

indicate that educational support plays a role in shaping the entrepreneurial intention of students while neither family support nor structural support affects the entrepreneurial intentions of students (Krichen and Chaabouni, 2022; Parvaneh Gelard, 2011) [21, 38]. The specific contextual condition of the economic environment is a major factor in this study. This study focuses on the perceived support that these factors provide during times of crisis, such as the COVID-19 pandemic. Thus, the second hypothesis:

H2: Perceived contextual support positively affects entrepreneurial intentions during the COVID-19 pandemic

2.2.3. COVID-19 Perceptions and entrepreneurial intentions

The COVID-19 crisis may have a twofold impact on university students' entrepreneurial intentions. Changes in perception might have a negative impact and discourage new entrepreneurs or these changes might have a positive impact and encourage new entrepreneurs by providing new business strategies (Meahjohn and Persad, 2020) [30]. The COVID-19 crisis can harm entrepreneurial intent by instilling a sceptical attitude regarding the formation of new businesses. This impact should be higher for university students who view the pandemic as a threat rather than an opportunity. Similar prior studies have shown mixed impacts of COVID-19 perceptions on entrepreneurial intention (Krichen and Chaabouni, 2022; Li *et al*., 2021) [21]. Therefore, the following hypothesis is suggested:

H3: COVID-19 threat or opportunity perceptions have a significant influence on a person's intention to start a business

2.2.4. Attitudes towards entrepreneurship and entrepreneurial intention

The attitude reflects the extent to which the individual regards starting a venture as a good or bad thing to do, as judged by the individual. Some scholars propose that entrepreneurial motivation is largely based on "pull" factors (Ozaralli and Rivenburgh, 2016) [53]. This means that individuals seeking independence, self-fulfilment, wealth, and other desirable outcomes are more likely to find entrepreneurship attractive (Liñán, and Fayolle, 2015) [27]. This is because such Individuals may believe that entrepreneurship, compared to other alternatives, offers better means for achieving these desirable outcomes (Liñán, and Fayolle, 2015) [27]. It is expected that individuals who find the rewards of starting and managing their own businesses attractive would not only find entrepreneurship valuable but they would also choose an entrepreneurial career. Based on final-year university student samples in the USA and Turkey (Ozaralli and Rivenburgh, 2016) [53] as well as Saudi Arabia (Almobaireek and Manolova, 2012) [3], scholars find that individuals with a favourable attitude toward entrepreneurship are more likely to report a high EI. Therefore, the study posits as follows:

H4: the higher the level of personal attitude toward entrepreneurship, the higher the level of entrepreneurial intention.

2.2.5. Perceived behavioural control and entrepreneurial intention

Explains perceived behavioural control (PBC) as "the perceived ease or difficulty of performing the behaviour of interest … and it is assumed to reflect experience as well as anticipated impediments and obstacles" (p. 188). In essence, the person is asking him/herself the question "Could I do it if I want to?" It is believed that some ability is needed for a new venture to come about (Linan and Fayolle, 2015) [27].

Concerning entrepreneurship, PBC relates to the perception of technical competencies required, the financial risks, the administrative burden and the access to resources. Based on empirical research, scholars in Spain (Linan *et al*. 2015) [27], USA and Turkey (Ozaralli and Rivenburgh, 2016) [53], as well as Malaysia (Chuah *et al*., 2016) [9] establish that the higher perceived behavioural control concerning new venture creation, the higher the level of the business start-up intention. Perceived behavioural control would be high for individuals who feel they have the knowledge, networks and means needed to get a business going. Conversely, PBC would be lower for those who feel they lack one or more of those requirements. It is expected that individuals who not only consider themselves personally capable of starting and managing a business but also who regard entrepreneurship to be viable would choose an entrepreneurial career. Therefore, this study posits as follows:

H5: Perceived behavioural control is positively correlated with entrepreneurial intention.

2.2.6. Business Start-Up intention and business start-Up Action

Before initiating an action, entrepreneurs must make a subjective assessment of several factors, such as the projected opportunity, the degree of novelty, the desirability, i.e., its profitability prospects, the feasibility, and the availability of essential resources (Linan and Fayolle, 2015) [27]. As a result, it is suggested that persons with high EI will contribute more ideas, adequate time, and sufficient resources for the growth of a business. Prior studies indicate that individuals with high EI are more likely to engage in actual startup activity (Mwiya *et al*., 2019) [34]. Therefore, the following hypothesis might be proposed:

H6: Entrepreneurial intention has a significant influence on a person's behaviour to start a new business.

2.2.7. Conceptual Framework

The theory of planned behaviour (TPB) has been used recently as a theoretical framework to explain entrepreneurial intention. COVID-19 as a representation of crisis, is a critical factor that merits further investigation. However, systematic literature reviews revealed a lack of research that extends the TPB to explain how entrepreneurial intentions are shaped by factors associated with COVID-19 (Krichen and Chaabouni, 2022; Kuckertz *et al*., 2020; Li *et al*., 2021; Meahjohn and Persad, 2020) [21, 23].

From a psychological perspective, Krichen and Chaabouni (2022) [21] analysed important key factors of decision-making. More precisely, they examined how different perceptions affect the development of entrepreneurial intentions. According to Krichen and Chaabouni (2022) [21], individuals develop perceptions from internal and external contexts and construct them in their minds. People may have different perceptions due to cognitive biases. In business, entrepreneurs are susceptible to a variety of cognitive biases that affect their perceptions due to uncertainty. As a result, an individual may have a lower risk perception than others or, conversely, may overestimate their abilities to establish a new venture.

An individual's perception of a certain context is influenced by their appraisal of the possibility of certain events occurring (Ratten and Jones, 2021) [39]. In regards to the COVID-19

crisis, however, this assessment must be given with caution (Ratten and Jones, 2021) [39]. A person's perspective of contextual circumstances could have a significant effect on the formation of their entrepreneurial intention and the feasibility of establishing an entrepreneurial venture (Arrighetti *et al.*, 2016b) [4]. COVID-19's effects on the entrepreneurial environment can be interpreted as cognitive perception rather than macroeconomic variables. Based on the foregoing discourse and hypotheses development, the following conceptual model is proposed in Figure 1:

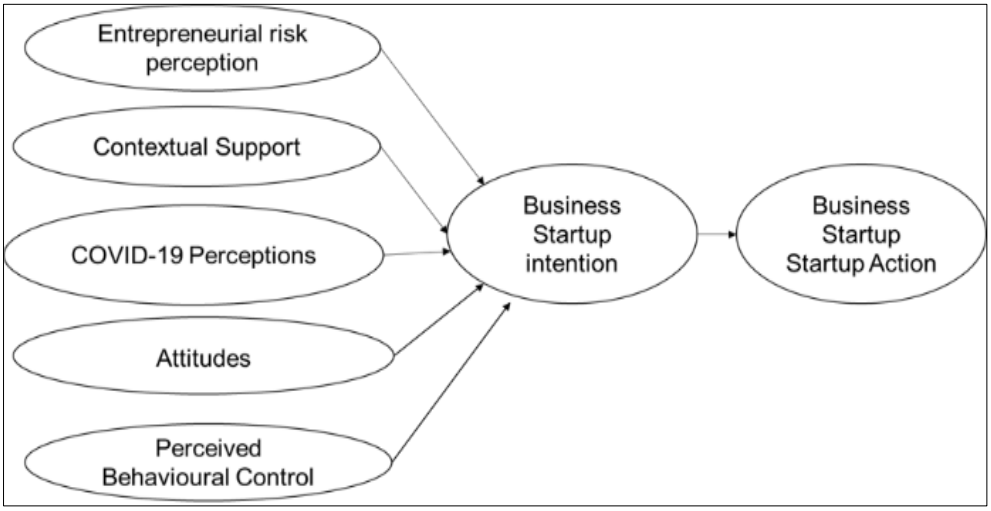

Fig 1: Conceptual Framework

3. Methods and Measurements

Given the nature of the study, data were gathered using the correlational research design to test the conceptual model and hypotheses. Numerous variable relationships are investigated in correlation research (Brown and Hedges, 2009). Correlational research designs have also been used in previous studies to examine similar relationships. Students in Zambian universities made up the study's target demographic. In Kitwe, Zambia, about 20,000 undergraduate students are attending public universities studying a variety of subjects. However, because it takes into account any violations of normality requirements, factors analysis, and reliability analysis, a sample size of at least 200 respondents is suitable for the study (Mwiya, 2014) [34]. This study practically generated a sample size of 401 respondents based on random systematic sampling for every 10th student encountered on the university campuses.

A survey using a self-administered questionnaire was used to gather data. The research questionnaire had items based on a five-point Likert scale, with the extremes being strongly disagree and strongly agree. The target demographic received the questionnaires for six weeks. Table 1 displays the properties of the sample. Sampling methods comprise determining the sample size, choosing a sampling procedure, and choosing a subset of a big population.

Table 1: Sample Profile

Variable	Description	Frequency	Percent
Gender	Female	210	52.4
	Male	191	47.6
	Total	401	100
Age Group (Years)	16-20	50	12.5
	21-25	314	78.3
	26-30	30	7.5
	31-34	6	1.5
	35 and Above	1	0.2
	Total	401	100
Study Mode	Full-Time	380	94.8
	Distance	4	1
	Evening	17	4.2
	Part-Time	0	0
	Total	401	100
Year of Study	1st	48	12
	2nd	68	17
	3rd	92	22.9
	4th	165	41.1
	5th	28	7
	Total	401	100
School Type	Business	163	40.6
	Non-Business	238	59.4
	Total	401	100

Over a three to six-week period, the questionnaire was distributed to students who used various social networking sites to link them to the online survey. Table 4.1 shows the characteristics of the sample. Males accounted for 47.6% of the sample, while females accounted for 52.4%. Individuals aged between 21 and 25 years made up the largest proportion (78.3%), this is typical of undergraduate students in Zambia. The majority of students were single, comprising 96.5% of the population. The data also shows that the majority of students (41.1%) were final-year or fourth-year students. Final-year students are more likely to consider the next career move because they face a displacement event i.e. completion of their studies is imminent. Furthermore, data reveals that the majority of students come from non-business schools and public universities, accounting for 59.4% and 99% of the population, respectively.

3.1. Measurement model and internal validity justification

Table 2 reflects the measurement model, the questionnaire items thereof and the reliability statistics.

Table 2: Measurement model

Variable	Items	Source	Cronbach's Alpha
Contextual Support	▪ The education in university encourages me to develop creative ideas for being an entrepreneur ▪ My university provides the necessary knowledge about entrepreneurship ▪ My university develops my entrepreneurial skills and abilities ▪ In Zambia, the government encourages entrepreneurs to establish a firm ▪ State laws (rules and regulations) are adverse to running a business ▪ Tax regulation gives facilities to entrepreneurs ▪ Zambia's economy provides many opportunities for entrepreneurs ▪ If I decide to become an entrepreneur, my parents will support me Informal network ▪ If I decide to become an entrepreneur, my family members will support me ▪ If I decide to become an entrepreneur, I will consult my family members ▪ If I decide to become an entrepreneur, my friends will support me ▪ If I decide to become an entrepreneur, my family will give me emotional support ▪ To start entrepreneurship activities, I will benefit from the advice of experienced consultants ▪ To start entrepreneurship activities, I will benefit from the country's entrepreneurs' network ▪ To establish a business plan, I will get benefits from agencies related to entrepreneurship activities ▪ To start entrepreneurship activities, I will benefit from customer and supplier networks	Gelard and Saleh (2011) [38]	0.961
Entrepreneurial Risk Perception	▪ Starting a new business is very risky (R) ▪ I see the possibility of starting a business as a potential loss (R) ▪ I see the possibility of starting a business as a potential opportunity to pursue. ▪ The probability of a new venture doing poorly is very high (R) ▪ There is great uncertainty when predicting how well a new venture will do. ▪ The overall riskiness of a new venture is high (R) ▪ Overall, I would label the option of starting a business as something positive ▪ If I don't start my own business, I may be missing a great opportunity	Barbosa *et al.* (2007) [5]	0.941
COVID-19 Perception	▪ The economic crisis created by the COVID-19 pandemic is a barrier to starting a new venture (R) ▪ The COVID-19 pandemic can be an opportunity for the creation of a new business	Krichen and Chaabouni (2022) [21]	0.710
Entrepreneurial Intention	▪ I am ready to do anything to be an entrepreneur ▪ My professional goal is to become an entrepreneur ▪ I will make every effort to start and run my firm ▪ I am determined to create a firm in the future ▪ I have very seriously thought about starting a firm	Li *et al.* (2021)	0.938
Attitude Towards Entrepreneurship	▪ Being an entrepreneur has more advantages than disadvantages ▪ Entrepreneurship is interesting ▪ I will become an entrepreneur if I possess enough resources ▪ I prefer being an entrepreneur to being an employee	Ajzen (1991) [1]	0.916
Perceived Behavioural Control	▪ To start a firm and keep it working would be easy for me ▪ I am prepared to start a viable firm ▪ I can control the creation process of a new firm	Ajzen (1991) [1]	0.933

	▪ I know the necessary practical details to start a firm ▪ I know how to develop an entrepreneurial project ▪ If I try to start a firm, I would have a high probability of succeeding		
Entrepreneurial Action	▪ I have attended a Start Your Own Business planning seminar or conference ▪ I have written a business plan/participated in seminars that focus on writing a business plan ▪ I have put up/ starting to put together a start-up team ▪ I am looking for a building or equipment for the business ▪ I am saving money to invest in the business ▪ I have developed / currently developing a product or service ▪ I have registered/started the process of registering a business	González-López *et al*., (2020)	0.924

Note: (R) Items were reversed before reliability analyses and mean scores calculated

Table 2 illustrates the items used to measure entrepreneurial intention. In the study, there are seven variables. All variables were measured on a five-point Likert scale with levels 1 = "strongly disagree" to 5 = "strongly agree". Contextual support was measured with 6 items (Cronbach's alpha is 0.961), entrepreneurial risk perceptions with 8 items questions (Cronbach's alpha is 0.941), COVID-19 perceptions with 2 items (Cronbach's alpha is 0.710), entrepreneurial intention with 5 items (Cronbach's alpha is 0.938), attitude towards entrepreneurship with 6 items (Cronbach's alpha is 0.916), perceived behavioural control with 6 items (Cronbach's alpha is 0.933) and entrepreneurial action with 7 items (Cronbach's alpha is 0.924).

Correlation and regression analyses were carried out using the Statistical Package for Social Sciences (SPSS version 24). Multiple linear regression was applied in this study to test hypotheses. Reliability and internal consistency of the measurement tool were conducted using Cronbach's alpha. The reliability analyses of variables' measurements can be referred to in Table 2. This is an internal consistency measure that determines how closely related a collection of items is. All Cronbach's Alpha values were above the minimum threshold of 0.70 indicating a high degree of internal consistency. The rules of thumb for acceptable Cronbach's alpha are a>0.90 excellent, a>0.80 good, a>0.70 acceptable, a> 0.60 questionable, a>0.50 and a<0.50 unacceptable (Wadkar *et al*., 2016) [43].

4. Research findings, interpretation and discussion

The research findings are explained and interpreted before delving into the discussion, contributions to knowledge, limitations of the study and directions for future research.

4.1. Correlation Analyses

Table 3 reflects the standard deviations, research variable means, and correlations amongst the dependent, independent, and control variables. Correlations help in determining the degree to which the variables are related to one another. In correlation analysis, the values range from -1 to +1. A negative correlation depicts an inverse relationship between the variables, whereas a positive correlation indicates that the relationship is in the same direction. According to Pallant (2011) [37], a correlation value of 0.1 to 0.29 indicates a weak correlation between the variables. A correlation between the variables of 0.30 to 0.49, on the other hand, suggests a medium correlation. Finally, a value between 0.5 and 1 indicates a high correlation between the variables. In Table 3, correlations can be significant at two levels: $p<0.05$ and $p<0.01$.

Multi-collinearity occurs when two or more predictor variables in a multiple regression model are so highly correlated typically above 0.90. Multicollinearity entails that the dependent variable can be predicted linearly from one of the independent variables with a reasonable degree of accuracy without requiring the other variable (Pallant, 201) [37]. This phenomenon implies that certain variables are measuring the same thing and that only one of them is required to predict the outcome. In Table 3, none of the variables has a correlation above 0.90 and therefore multicollinearity is not problematic.

Table 3: Correlation among all Variables

#	Variable	Mean	Std. Dev	N	1	2	3	4	5	6	7	8	9
1	Entrepreneurial Action	2.773	1.176	401	-								
2	Business Start-up Intention	3.286	1.300	401	.681**	-							
3	Age Group	1.990	0.531	401	0.065	0.020	-						
4	Gender	0.480	0.500	401	.123*	0.068	.154**	-					
5	Entrepreneurship Education	0.590	0.492	401	-.274**	-.229**	-0.077	0.017	-				
6	COVID-19 Perceptions	3.074	1.243	401	.601**	.802**	0.020	0.008	-.239**	-			
7	Entrepreneurial Risk Perception	3.187	1.174	401	.606**	.844**	-0.007	0.010	-.267**	.853**	-		
8	Attitude Towards Entrepreneurship	3.357	1.293	401	.616**	.878**	0.020	0.030	-.249**	.793**	.848**	-	
9	Contextual Support	3.043	1.088	401	.698**	.854**	0.021	0.012	-.284**	.818**	.861**	.831**	-
10	Perceived Behavioural Control	3.044	1.162	401	.783**	.846**	0.043	0.071	-.251**	.748**	.770**	.826**	.831**

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

4.1.1. Correlation between control variables and entrepreneurial intention

The set of demographic control variables for this study includes Gender, Age Group and Entrepreneurship Education. Table 3 shows that the age group differences have no significant effect on the dependent and independent variables. This is expected because the majority of students are in the same age group between 20 and 25 years of age (over 78%, see Sample profile Table 1). However, Gender (r=0.123*) shows a significant and direct relationship

(females coded 0 and males 1) while Entrepreneurship Education (r=-0.274**) shows a significant but negative relationship (coded Yes=1 and No=0). This means that females are less likely to have the intention to start a new business compared to males. Additionally, students who studied entrepreneurship as a course are less likely to engage in entrepreneurial action than students who did not study entrepreneurship as a course. This entails that those who did not study entrepreneurship as a course are ready to take risks associated with starting a business. It is worth noting that the negative sign indicates the relationship's direction rather than its strength, -0.6 and 0.6, for example, have the same strength although their directions are opposite. This finding is contrary to expectations because entrepreneurship education is meant to build entrepreneurial self-efficacy and increase intention as well as action. An exploration of the nature of the training in terms of content and pedagogy would help to unravel why this result would be plausible.

The correlation coefficient might be any value between –1.00 and 1.00. The strength of the relationship between the two variables will be indicated by this value. A correlation of 0 implies there is no relationship at all, a correlation of 1.0 implies there is a perfect positive correlation, and a correlation of –1.0 implies there is a perfect negative correlation. Cohen (1988, pp. 79–81) recommended effect sizes to be interpreted as follows: small r=0.10 to 0.29, medium r=0.30 to 0.49, and large r=0.50 to 1.0 (Pallant, 2011) [37].

4.1.2. Correlation between entrepreneurial intention and its antecedents

Table 3 confirms that the proposed conceptual model is largely supported. All five antecedents showed that they were significant and positively correlated with intention and actual action. The Correlations Matrix in Table 3 shows various correlations all within the medium and large effect size ranges with significance levels of $p<0.0$. The antecedents to entrepreneurial action and intentions are all positively significant. The correlations were as follows concerning entrepreneurial action: COVID-19 Perceptions (r=0.601**), Entrepreneurial Risk Perception (r=0.606**), Attitude Towards Entrepreneurship (r=0.616**), Contextual Support (r=0.698**) and lastly Perceived Behavioural Control (r=0.783**). The effect sizes are generally large based on Cohen's criteria whether with entrepreneurial action or entrepreneurial intention.

4.2. Hypotheses testing results and interpretation

The results of the hypothesis tests, as interpreted using multiple regression analysis, are discussed here under.

4.2.1. Regression analysis between entrepreneurial intention and its antecedents

Table 4 depicts a multiple hierarchical regression undertaken to determine the effects of the control and independent variables on the dependent variable. The independent variables are COVID-19 perceptions, Entrepreneurial Risk Perceptions, Attitude Towards Entrepreneurship, Contextual Support and Perceived Behavioural Control, the dependent variable being Entrepreneurial Intention. In Table 4, the significance of relationships using comparable beta values should be interpreted as follows: ***sig<0.001 (0.1 percent), **sig<0.01 (1 percent), *sig<0.05 (5 percent). The multiple correlation coefficients (R) and the coefficients of determination (R2) values give the combined effect of the variables in each model to explain the dependent variable.

Table 4: Hierarchical Multiple Regression Analyses with Entrepreneurial Intention as Outcome

	Model 1	SE (1)	Model 2	SE (2)	Model 3	SE (3)	Model 4	SE (4)	Model 5	SE (5)	Model 6	SE (6)	VIF
	Beta		Beta		Beta		Beta		Beta		Beta		
Control Variables													
Gender	0.073	0.128	0.084	0.078	0.059*	0.067	0.048*	0.057	0.049*	0.054	0.037	0.052	1.038
Age Group	-0.009	0.121	-0.009	0.074	0.010	0.064	0.002	0.054	-0.002	0.051	-0.005	0.049	1.037
Entrepreneurship Education	-0.231***	0.129	-0.041	0.081	0.000	0.071	0.010	0.060	0.024	0.057	0.027	0.055	1.098
Independent Variables													
Covid 19 Perceptions			0.792***	0.032	0.300***	0.051	0.163***	0.045	0.097*	0.044	0.076	0.042	4.209
Entrepreneurial Risk Perception					0.588***	0.055	0.253***	0.055	0.136**	0.056	0.149**	0.054	6.026
Attitude Towards Entrepreneurship							0.536**	0.042	0.449***	0.043	0.347***	0.044	4.978
Contextual Support									0.29***	0.054	0.182***	0.058	5.639
Perceived Behavioural Control											0.241***	0.044	4.088
F	8.099***		182.524***		225.611***		290.931***		280.747***		272.648**		
F Change	8.099***		665.154***		140.593***		160.895***		41.282***		36.823***		
R	0.240		0.805		0.861		0.903		0.913		0.921		
R Squared	0.058		0.648		0.741		0.816		0.833		0.848		
R Squared Adjusted	0.051		0.645		0.737		0.813		0.830		0.845		
R Squared Change	0.058		0.591		0.092		0.075		0.017		0.014		

*Significant at 5% **Significant at 1% ***Significant at 5%

Based on descriptive statistics and regression analyses in the final model (model 6), the results indicate that COVID-19 perceptions (Beta=0.076, p>0.05), Entrepreneurial Risk Perceptions (Beta=0.149, $p<0.01$), Attitude Towards Entrepreneurship (Beta=0.347, $p<0.001$), Contextual Support (Beta=0.182, $p<0.001$) and Perceived Behavioural Control (Beta=0.241, $p<0.001$), are predictors of Entrepreneurial Intentions (adjusted multiple R squared= 0.845 and the R= 0.921, representing a combined large effect size). While one variable may not be significant in a multiple regression setting, particularly COVID-19 perceptions, it does make a significant contribution individually, as seen in the bivariate correlation matrix and in the regression models preceding the last one.

4.2.2. Relationship between entrepreneurial action and entrepreneurial intention

To establish the relationship between Entrepreneurial Action (EA) and Entrepreneurial Intention (EI), this study used the matrix correlations in Table 5.1. The correlation coefficient is 0.681. According to Pallant (2011) [37], the correlation coefficient in a simple linear regression will always be equal to the Beta value. In this case, there is no need to execute another regression model if the correlation coefficient is already known. Therefore, the correlation coefficient being 0.681 entails that the beta value is 0.681 and the coefficient

of determination is 0.464. This indicates a large effect size. 45% of the changes in EA can be explained by the changes in EI. Therefore, H6 is supported.

5. Discussion and Contributions

The findings of this study, supported by multiple regression and correlation analyses, show that four determinants, namely positive Entrepreneurial Risk Perceptions, Attitude Towards Entrepreneurship, Contextual Support, and Perceived Behavioural Control, have a positive and significant influence on Entrepreneurial Intention. However, COVID-19 perceptions do not reflect a significant influence on Entrepreneurial Intention.

The most intriguing finding of this study addresses students' perceptions of the COVID-19 pandemic. COVID-19 perceptions, according to the findings, are positive and significant even amid other antecedents concerning entrepreneurial intentions; the effect only becomes insignificant when perceived behavioural control is introduced. These findings suggest that a person's propensity to launch a new business is influenced by their opportunity-focused perception of the crises, in this case, COVID-19. The positive relationship means that students who perceive the crisis as an opportunity will seek opportunities to launch a business in the crisis. When a distinction is drawn between students who perceive the crisis as a threat and those who perceive it as an opportunity, the findings of this study demonstrate that these two groups have significantly different risk perceptions. Thus, H1 is only not supported in a multiple regression context when perceived behavioural control is introduced in model 6 (Beta=0.076, p>0.05).

Entrepreneurial risk perception has shown a positive and significant relationship with Entrepreneurial Intention (Beta=0.149**, $p<0.01$). The results indicate that the perception of risk as an opportunity has a significant influence on student's intention to start a business during the COVID-19 pandemic. The findings imply that individuals who perceive risk as an opportunity will have the desire to start a new business and are ready to take risks during a crisis such as the pandemic. Overall, the results support H1 and are consistent with previous research. Contextual support factors include educational support, structural support, informal networks and formal networks. Study results have shown that the university student's perceived contextual support has a positive and significant influence on the intention to launch a new firm during a crisis, in this case, the COVID-19 pandemic (Beta=0.182***, $p<0.001$). The findings imply that contextual support factors play an important role in developing the entrepreneurial intention of students. These findings partially confirm prior studies in Tunisia (Krichen and Chaabouni, 2022) [21] that found that perceived educational support positively influences EI during COVID-19.

Perceived Behavioural Control (PBC) and Attitude Towards Entrepreneurship (ATT) are elements of the theory of planned behaviour (TPB) and were included in the model as predictors of entrepreneurial intention. The empirical study reveals that both PBC and ATT have a positive and significant influence on students' intention to start a business during COVID-19 (Beta=0.241***, $p<0.001$ and Beta=0.347***, $p<0.001$ respectively). This means that students who believe that they can establish, manage, and expand their businesses are more likely to develop entrepreneurial behaviour. Additionally, students who have a positive attitude toward entrepreneurship and perceive it as a viable and appealing career path are more likely to intend to start a new business during a crisis such as the COVID-19 pandemic. Since actions are controlled by intentions (Ajzen, 1985), the results also imply that entrepreneurial behaviour is influenced by entrepreneurial intentions, albeit not all intentions are actualised. Overall, the findings indicate that the augmented TPB can be used effectively to predict Zambian undergraduates' entrepreneurial intentions and actions.

In terms of contribution to knowledge, this study is among the pioneering studies that have incorporated into the theory of planned behaviour (TPB), contextual support, risk perceptions and crisis perceptions in a pandemic time to increase our understanding of entrepreneurial responses to crises.

6. Research limitations and future directions

Like all research, this study has some limitations. This study collected data from 401 students at public universities in Zambia's second-largest city, Kitwe. When these students start to work on their business, their intentions and behaviour could be understood better. To mitigate these limitations, future researchers should extend their study to samples including other universities in the country to test the entrepreneurial intention of university students belonging to both public and private universities. A longitudinal study would also be a great way to trace the actualisation of intentions and nascent behaviour.

The second limitation is that this study obtained information only during the period of the COVID-19 pandemic. Other empirical research would be important during the post-pandemic period to determine the genuine and unforeseen effects of the crisis on entrepreneurial intentions and actions.

The last constraint concerns the context of research. The study has used empirical information from a single developing country. Therefore, the findings may not be generalized to other countries in the region or beyond. Lastly, in multiple regression, some antecedents move from being positive to negative and others change from being significant to being insignificant as additional antecedents are introduced. The change in sign according to mediation scholars (Zhao *et al*. 2010) [45] signifies possible mediation effects of other variables. This requires further exploration of the relationship among variables. The limitations notwithstanding, this study contributes to the literature by clarifying the antecedents of entrepreneurial intention in the context of crises such as a pandemic.

7. Conclusion

The objective of this research was to examine the influence of risk perceptions during COVID-19 on the entrepreneurial intentions and actions of university students in an under-researched context of Kitwe, Zambia. To achieve this aim, the study employed a quantitative correlational research design to collect data from university students in Copperbelt, Zambia. The data was collected using a five-point Likert scale questionnaire and analysed using multiple regression and correlation models in the statistical package for social science (SPSS).

Research showed that the TPB can be used effectively to predict Zambian undergraduates' entrepreneurial intention and that entrepreneurial attitude and perceived behavioural control are significant factors explaining the diversity in

Zambian students' entrepreneurial intention. The results also show that Entrepreneurial risk perceptions, contextual support and opportunity perceptions in a crisis like the COVID-19 pandemic are significant explanatory variables. Despite the sample emanating from only one city, the findings imply that risk perceptions, contextual support and opportunity-spotting responses to crises like a pandemic together with the theory of planned behaviour (TPB) elements can be used effectively to predict Zambian undergraduates' entrepreneurial intention. This has many training and entrepreneurial support implications for educators, policymakers and scholars. Thus, the research has provided several theoretical contributions as well as recommendations for academic institutions and the Zambian government.

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