



Psychosocial Impacts of COVID-19 Pandemic on West Africans Based in Victoria Australia who Survived the 2014-16 Ebola Epidemic: The Methodological Approach

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Authors' contributions

This work was carried out in collaboration among all authors. Author SLM conducted the main work including literature search and drafting of the manuscript. Author EUN provided guidance on the statistical analysis. Author PTB reviewed the results. Authors EUN and PTB reviewed the manuscript drafts done by Author SLM for intellectual content. All authors read and approved of the final manuscript.

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ABSTRACT

Background: COVID-19 pandemic caused some obvious psychosocial distress in virtually all aspects and works of life. This has led to massive volumes of research. Yet, concerns for preparedness against future disease outbreak remains. One of such concerns is around mental health care. Therefore, a research agenda is to investigate the psychosocial impact of COVID-19 as perceived by Australian-based West Africans who survived the 2014-2016 Ebola epidemic before coming to Australia.

Objective: The objective of this article is to describe the options of research methods that have been considered.

Method: The description was designed to take a narrative approach. As such, vivid descriptions of potentially applicable research methods are presented.

Outcome: Paradigms as well as concepts of qualitative and quantitative research rationales are discussed. Sequential approach in mixed-method research is also described. Limitations of the different methodological options are highlighted to inform their pros and cons.

Conclusion: The significance of this article is elucidation of methodologies that underpin the selected methods in the research project.

Keywords: Research methodology; psychosocial impact; paradigms; mixed methods; limitations.

1. INTRODUCTION

1.1 Overview

This research study examines the methodological approach pertaining to the psychosocial impact of the COVID-19 pandemic as perceived by Australian-based West Africans who experienced the 2014–2016 Ebola epidemic in West Africa. Previously, a study provided evidence-based information on factors related to the research topic. This study explored the psychosocial impact of the COVID-19 pandemic on Australian-based West Africans who survived the 2014-2016 EVD epidemic. This section explains the methodologies i.e., research approaches and design used in the study. It also defines research approaches, the rationale for the chosen research approaches, philosophical assumption underpinning the study, research paradigms in the study, mixed method study, philosophical assumptions underpinning mixed research, qualitative approach, qualitative approach, and summary.

1.2 Objective

This is a narrative review of methodology to tell the concrete background of our research study and inform the types of research procedures applicable in the study topics. That is, given the research agenda to investigate the psychosocial impact of COVID-19 as perceived by Australian-based West Africans who survived the 2014-2016 Ebola epidemic before coming to Australia (Mandoh et al., 2024), the objective of

this article is to describe the options of research methods that have been considered.

1.3 Method

This was a traditional 'narrative review'. The descriptive narrative approach is hereby used to vividly describe options of applicable research methodology that formed the framework of the study protocol. Further, the descriptions include comparative tables that provide limitations vis-à-vis pros and cons of the various options.

2. APPLICABLE METHODOLOGIES

A research approach or methodology is a technique implemented when undertaking a study. There are three research approaches that is, mixed method, quantitative and qualitative methods that can be sub-classified.

2.1 Mixed-methods Research

Mixed-methods research embraces integrating elements of qualitative and quantitative approaches at various stages of a study for a rigorous inquiry into a phenomenon (Guetterman et al., 2015; Johnson et al., 2007; Battista and Torre, 2023). This approach facilitates a complementary data collection, analysis, and interpretation to understand the topic under investigation. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the integration of qualitative and quantitative data in a single study or series of studies. Mixed-

methods approaches have been described as cancelling the individual weaknesses of quantitative and qualitative methods and strengthening the validity and reliability of a study (Brown et al., 2015; Regnault et al., 2017). A sequential exploratory mixed method that would be utilised in this study (Fig 1).

2.2 The Rationale for Using the Chosen Research Approach

This study sought to examine the psychosocial impact of the COVID-19 pandemic as perceived by Australian-based West Africans who experienced the 2014–16 Ebola pandemic. As outlined in Mandoh. et al. (2024), research to date focusing on the impact of the COVID-19 pandemic in Australia largely concentrates on a broad range of impacts such as income, social cohesion, well-being, and psychological distress. There is a gap in understanding the impact of COVID-19 on specific migrant communities, such as the West African community, and particularly those who survived the EVD epidemic of 2014-2016. The diverse sociocultural backgrounds and experiences of prior traumatic events in the person's home country e.g., wars, political upheavals, and infectious disease outbreaks, which may influence responses to current events in the Australian context are also not clear. This research applied a two-pronged approach to explore the psychosocial impact of the COVID-19 pandemic on this West African community living in Australia and who experienced prior trauma. A sequential exploratory mixed method design was utilised to obtain a nuanced understanding of this community to inform the development of focused support services rather than a one-size-fits-all

approach (Ivankova et al., 2006). Thus, this study collected survey data initially incorporating both quantitative and qualitative questions followed by interviews to explore the topic to a greater depth.

2.3 Philosophical Assumption Underpinning this Study

The term paradigm was first introduced into research by Thomas Kuhn in 1962 (Kivunja and Kuyini, 2017). Kuhn defined a paradigm as assumptions and intellectual structures which the researcher holds in relation to research and development in a field of inquiry (Everest, 2021). The term initially originates from Greek and Latin (Kankam, 2019), which describes philosophical perceptions that help researchers view and understand the world around them . In other words, a paradigm is described as a fundamental image of the subject matter within science, which serves to define what should be studied, what questions should be asked and what rules should be followed in interpreting the answers (Kaushik and Walsh, 2019). A paradigm therefore subsumes, defines, and interrelates the exemplars, theories, methods, and tools that exist within it (Göktürk, 2005) and can be considered as the broadest unit of consensus within science, differentiating one scientific community (or sub-community) from another. Paradigms assist researchers in steering their studies in the direction that could give better meanings to the process (Taylor and Medina, 2013) and portray the philosophical beliefs of the researchers about the way they perceive the world.

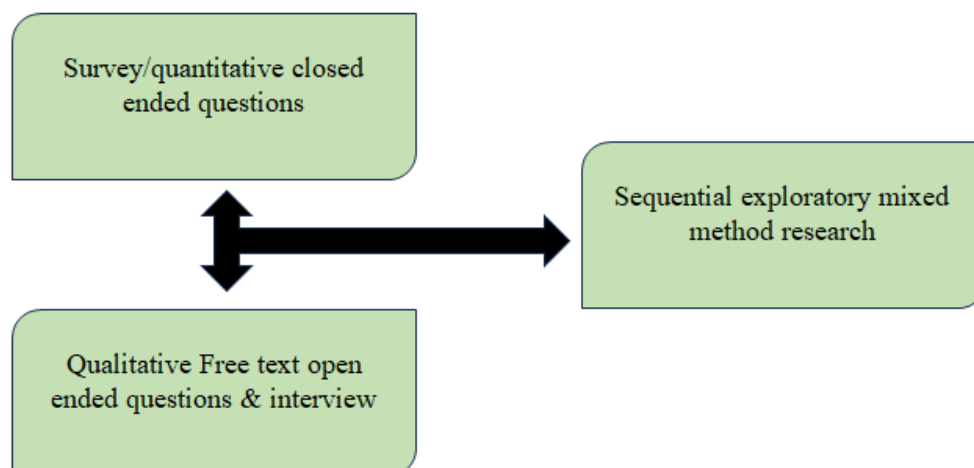


Fig 1. Diagram of a sequential exploratory mixed method research

The fundamental philosophical components of a paradigm are ontology, axiology, epistemology and methodology. Ontology dwells on the nature of reality, anything that could be found about the phenomenon of genuine interest. It is a study of something in existence, or that will come into existence for people to know about (Berryman, 2019).

2.3.1 Ontology

Ontology dwells on the nature of reality, that is, anything that could be found about the phenomenon of true or real interest. It is a study of something in existence or that will come into existence (Tashakkori et al., 2020). Ontology is closely related to axiology.

2.3.2 Axiology

Axiology is described as what is valued (Smith et al., 2024). It concerns ethical matters such as what is wrong or right in the research. Axiology attempts to identify and respond to all the queries in the research.

2.3.3 Epistemology

Similarly, epistemology refers to methods of identifying and uncovering the source(s) and foundation of truth (Khatri, 2020). The origin of epistemology comes from the Greek language *episteme* or implying to identify the truth. It describes the form and essence of the truth. It also explains how the researcher arrived at reality or the truth. Ontological, axiological, and epistemological understandings are central to the researcher's methodology.

2.3.4 Methodology

The methodology focuses on the systematic process of uncovering truth or reality, which forms the fundamental basis of approaches

adopted in this study. Methodology explains the steps involved in the research process (Bhaskar and Manjuladevi, 2016).

2.4 Research Paradigm

A research paradigm is a philosophical approach that is based on a research methodology. It is a framework that informs research theories and practices through their principles and assumptions (Park et al., 2020). The philosophical assumption in this study constitutes the theoretical basis for collecting, analysing, and interpreting the data collected. Examples of major philosophical traditions are, post-positivism, interpretivism, pragmatism. Though they are not entirely independent of one another, they are more inclined towards some particular research methods (Creswell, 2014; Weyant, 2022).

2.5 Research Paradigms in Quantitative Studies

It includes various traditional research methods that are aligned to the mix of qualitative and quantitative methods (Fig 2). Within the discourse of research paradigms, there are concept of positivism and interpretivism. The former is focused on quantitative studies and espoused in this section.

2.5.1 Positivism

The beliefs in the positivism paradigm are based on the cause-and-effect principle, that knowledge is already in existence, waiting to be discovered. Positivism is popular with quantitative researchers, especially in the natural sciences. It forms the basis for the quantification and analysis of variables. This process is aided by utilising figures and statistical techniques to get results (Park et al., 2020).

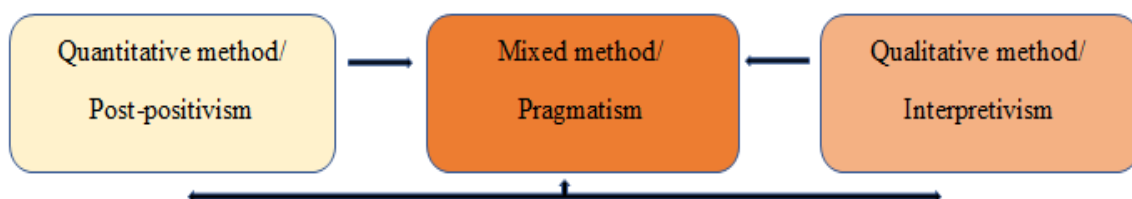


Fig 2. Research paradigms

Table 1. Summary of research paradigms Davies & Fisher, (Davies and Fisher, 2018)

Research approach	Characteristics	Assumptions	Limitations	Implication for this study
Post- positivist/ quantitative	Rejects objectivity.	The researcher's identity affects what they are investigating	Does not trust objective data only when investigating a social phenomenon. Considers nuanced expressions by participants. More flexible than positivism in research.	Adds rigour to the process. Forms the basis of collecting analysis and reporting of the quantitative part of this research.
Interpretivist/ qualitative	Interaction, understanding and interpretation of participant's contributions and feelings.	Believes in subjectivity and multiplicity of reality. Individuals become the subject of analysis	The risk of losing focus on the validity of the study. Ontologically subjective.	Allows interactions between the researcher and his environment and interpretation of qualitative data collected.
Pragmatic/ mixed methods	Combination and complementarity of opposing philosophical traditions Dualism (Davies and Fisher, 2018).	Human actions are not separable from past worldly experiences. Association between actions and thoughts.	It is not limited to one philosophical tradition in research. Integration of qualitative and quantitative research findings. Interprets social phenomena through objective and subjective viewpoints combined.	Support and utilise various techniques in investigation, analysis, and combination of the whole study in order to achieve the research objective. Rigour and cancellation of individual design weaknesses. It is flexible.

Research underpinned by the positivism paradigm is based on establishing a cause-and-effect relationship and maintaining objectivity in studying the natural world, where hypotheses and laws are tested (Tanlaka et al., 2019) (Table 1). That is, the reason for upholding the 'hypothetico-deductive model of science' is that hypothesis is initially generated at the study's inception (Park et al., 2020). Most importantly, the researchers identify, manipulate, observe variables and work with theories and models (Park et al., 2020). Additionally, the researcher assumes that credible knowledge is gained through the senses and experiences that are supported scientifically, such as those gained through observable experiments. In other words, knowledge is based only on observable facts and not by other means (Park et al., 2020). This position contrasts with the researcher of this project's philosophical belief, which is in the pluralism of methods of gaining knowledge. Examples of such methods include interviews, observations, and utilising open and closed-ended questions in a study.

In positivism, the researcher also embraces realism by believing in the existence of a single truth (Lane, 2016) and that 'anything that is perceived through the senses is real' (Allmark and Machaczek, 2018), which some scholars describe as 'Naïve realism' (Allmark and Machaczek, 2018). This position opens positivism to criticism of being a rigid stance in the increasingly complex world. Some critics see the lack of flexibility in this paradigm as not leaving room to account for, accommodate, understand, and respond to emerging complex sociocultural issues impacting communities (Tanlaka et al., 2019). Thus, this study rejects this position because 'Naïve realists' perceptions depend solely on the individual's neurological perceptions and interpretations (Setia, 2016). Based on this, the author believes that Naïve realists fail to appreciate contributions from other means of arriving at the truth, such as interpretivism and constructivism (Khanna, 2018). Furthermore, Naïve realists do not recognise the drawbacks of maintaining internal independence, especially regarding selectionism (Setia, 2016).

2.5.2 Post-positivism

Post-positivism, also known as neo - positivism, is based on the principle that facts could be observed and analysed in various ways (Panhwar et al., 2017). Post-positivists

recognised objectivity in studies by ensuring recognising biases and managing them (Lane, 2016). The researcher's values, foundational knowledge, existing scientific theories, and hypothesis could affect the post-positivist stance. Though it was a modified version of the rigid positivist position where hypotheses and theories were tested, it also embraced some elements of interpretivism, which embraced a multiplicity of reality that aligned with the researcher of this study's philosophical beliefs (Panhwar et al., 2017).

Ideally, post-positivists do not accept wholesome objectivity as it is in positivism, especially in social investigations where some events cannot be tested as in laboratories (Tanlaka et al., 2019). Furthermore, positivists believe that facts can be perceived and recognised from various angles (Tanlaka et al., 2019). Undoubtedly, post-positivists appeared to recognise the generalisability of study findings and believed that tangible facts gained from natural events and interactions among elements of these events in their natural environment could yield good evidence of the occurrence of such events. This researcher believes that truth could be achieved and is measurable. Moreover, the primary focus of this study is to determine the psychosocial impacts of the COVID-19 pandemic on Australia-based West Africans who survived the 2014–2016 EVD, which was explored by combining qualitative and quantitative research methodologies for a better exploration and understanding of the phenomenon of interest.

2.6 Research Paradigms in Qualitative Studies

There are world views that guide qualitative researchers in designing, collecting, analysing study data. The following are examples of qualitative research paradigms.

2.6.1 Interpretivism

Interpretivism is used mainly by social scientists when carrying out qualitative research, especially when investigating social realities (Kivunja and Kuyini, 2017; Chowdhury, 2014). Interpretivism combines idealistic, constructivist, hermeneutic and phenomenological methods of investigation that reject the objectivist research principles. While this type of study seeks an insider's narrative or experience, it also promotes interactions between the researcher and the participants in the data collection process.

Interpretivism, involves interpreting and constructing events or human experiences in relation to a phenomenon under investigation (Bleiker et al., 2019). The interpretivist approach employs naturalistic traditions such as interviews and observations in collecting data. Though this method of investigation leans towards subjectivism, its major strength is that it enables the researcher to investigate sociocultural issues. Interpretivism believes in the multiplicity of truth, which is suitable for generating hypotheses (Bleiker et al., 2019). Interpretivists consider participants' experiences, nuances, and body language in investigating social realities to understand the topic of interest better; positivists may adopt a different approach.

2.6.2 Constructivism

The constructivist researcher assumes that truth is established by observing interactions among individuals in their natural environments, thus relying on the grounded theory for collecting data, interpreting the findings and giving meaning to them (Andrews, 2012; Thomas et al., 2020). Though several schools of thought subsumed with constructivism, all shared similar sociological ideals, Sociologists maintain that knowledge is gained by interaction among individuals, which can be interpreted to identify underlying issues (Andrews, 2012; Yazan, 2015). Therefore, constructivism is an essential paradigm used to inform the investigation of issues in the context of employing a process of investigation that combines pieces of information to arrive at the truth. Creswell, 2003 in (Crotty, 1998) identified the following assumptions as integral to research informed by constructivism: Individuals derive definitions of events from their interactions in their environments from arriving at meanings of the world through past and communal events. Furthermore, individuals synthesise experiences and events to arrive at what they see as a reasonable conclusion. Despite various achievements of constructivists, critics have accused constructivists of bias in data collection and analysis.

3. MIXED METHODS

Mixed-methods research combines qualitative and quantitative methods when collecting, analysing, and interpreting research data (Yazan, 2015). Data collected from closed-ended questions, free texts (open-ended questions) in the survey and data from the interviews were combined in this study. The significant motive for mixing these three data components is to expand

the investigation and reinforce the findings of the study. This action will increase the study's validity. Mixed method research could be categorised as follows; Explanatory sequential, Exploratory sequential, Convergent parallel, Embedded, Transformative, Multiphase designs (Schoonenboom and Johnson, 2017).

Thus, evaluating the preceding arguments above, a mixed research method is chosen for investigating a phenomenon and answer the research questions (Dawadi et al., 2021). The relevance of combining these data sets to this study includes the integration and corroboration of information from either the qualitative or quantitative components of this mixed study, and information from one study will complement and enhance the expansion and reinforcement of emerging themes in the study. This reinforcement and expansion add to the validity and replicability of the study. Scholars such as Dawadi et al. (2021) & Schoonenboom & Johnson (2017) also gave reasons for undertaking mixed research methods, which are: complementarity, development, initiation, and expansion of the topic. The mixed method is accredited for cancelling most of the weaknesses identified with the particular qualitative and quantitative research methods, thereby necessitating the combination of elements of the two research methods (Kaushik and Walsh, 2019).

Another rationale for using mixed method research is that this methodology allowed the comparison of the qualitative and quantitative components, leading to identification of commonalities and dissimilarities between the two study components. It also gave power to participants' voices in the study and encouraged flexibility by adopting what worked. It also provided a platform for a multidisciplinary approach to the study.

Though Wilkinson & Staley (2019) contend that in a mixed study, there is an argument about 'methodological dichotomies', Schoonenboom and Johnson (2017) assert that dichotomies based on methods, methodologies and paradigms cancel out the research process in a mixed study. As a result, these dichotomies will be minimised when the research is meticulously executed. Tashakkori & Teddlie (2010) also maintain that it is suitable for mixed studies and maintain that mixed methods as a methodology should embrace pragmatism as the philosophical basis which otherwise, embraces 'what works' in

their investigation. In other words, pragmatism being positioned in the middle is not decisive in selecting a specific method between qualitative and quantitative methods (Hathcoat & Meixner, 2017; Schoonenboom & Johnson, 2017). According to Schoonenboom & Johnson (2017), mixed method research can be complex phenomenon, such as the psychosocial impact of the COVID-19 pandemic on West Africans based in Victoria, Australia.

3.1 Philosophical Underpinning Research Assumptions Mixed Methods

The philosophical standpoint for mixed studies provides a foundation for employment and execution of a dual research tradition in single research. Pragmatism is selected for informing this mixed study. The reason is that pragmatism focuses on what works in research. It favours utilisation of qualitative and quantitative methods for collecting, analysing, and integrating data and reporting findings. And it provides us with the advantage of having more participants (quantitative research) and in-depth investigation of a phenomenon (qualitative research).

3.1.1 Pragmatism

Pragmatism is a philosophical approach that combines some qualitative and quantitative traditions in investigating a complex phenomenon. Pragmatism is widely considered the most appropriate philosophical support for mixed research studies because of its flexibility in application to either multi or mixed-methods studies (Elder-Vass, 2022). This philosophical tradition is based on the proposition that researchers use the philosophical and/or methodological approach that works best for the particular research problem under investigation (Kaushik and Walsh, 2019).

Early pragmatists believed that research experiences and ideas were relevant. Pragmatists further consider the multiplicity of explanations about how the world is perceived. Thus, according to Tashakkori & Teddlie (2010), this paradigm encourages the researcher to select and incorporate methods most suitable for answering the research questions Tashakkori & Teddlie, 2010a) to arrive at the truth. Pragmatists maintain that truth is not fixed and that the world cannot be separated from its inherent institutions (Kaushik and Walsh, 2019). Early proponents of this paradigm saw the need for flexibility by utilising mixed method procedures when

investigating complex social and public health issues, such as determining the psychosocial impacts of the COVID-19 pandemic on Australia-based West Africans who survived the 2014–16 EVD epidemic, and thence the basis for this mixed study. Hence, the significance and rationale for choosing pragmatism as a philosophical basis for investigating this complex phenomenon require a philosophical paradigm that will assist the researcher in having a clearer view of reality.

3.1.2 Emancipatory transformation

It is a research method that generates knowledge for the benefit of the disadvantaged. It was developed in response to some research paradigms that dominated research. This method also identifies and intervenes in social injustices and inequality in a community (Noel, 2016). It includes the changes individuals make to be free from legal and socio-political restrictions. This assumption reveals strength in combining two or more studies in one research. It also believes that cultural, social, and political-economic factors determine reality. In summary, it describes the internal changes individuals make that will free them from all limitations and biases (Mertens, 2007).

3.1.3 Critical realism

Describes an approach that utilises and identifies systems within a community. It serves to identify and combine social structures within a community for good. It believes that though researchers' evidence is near reality, they are always prone to errors. In other words they are not error free (Sturgiss and Clark, 2020). Critical seeks to explain what is achievable within a social setting (Parkinson et al., 2022). It also believes that the existence of reality does not depend on the processes of the mind, and it, therefore, can apply to social and cultural domains. It is an approach that highlights the positive effects of combined interventions in social settings. Critical realism embraces the results of combining complex processes, which produces results, and therefore believes that such combinations produce results that outweigh the product of the individual components (Sturgiss and Clark, 2020).

Suffice to note that the components of philosophical underpinnings previously discussed are applicable here. Table 2 summarizes the characteristics of the study's philosophical methods.

Table 2. Characteristics of study types

Research approach	Epistemology	Philosophical background	Ontology	Axiology	Relevance to this study
Quantitative	Study of knowledge and knowing	Post-positivism	Based on the existence and stability of social reality	Values should not be attached to inquiries	Supports the investigation of both qualifiable and quantifiable phenomena in this study
Qualitative	Interactions between researchers and participants	Interpretivism	Multiplicity of reality	Subjectivity	Measurement generation of data by interpretation and construction
Mixed methods	What works	Pragmatism	Single or multiple reality	Dualism	Rigour and cancellation of individual design weaknesses

3.2 Sequential Exploratory Mixed Method Design

A “sequential exploratory technique as a progressive strategy that is used anytime that quantitative results are augmented by qualitative data. As a result, quantitative data analyses and explains the qualitative results in succession” (Edmonds and Kennedy, 2016). Investigating a complex phenomenon, such as the topic under investigation, requires a robust research strategy, such as mixed research, which increases the rigour of the process. Characteristics of a sequential exploratory mixed method design:

1. A significant characteristic of a sequential exploratory mixed study is, cancelling the individual weaknesses of quantitative and qualitative investigative techniques, which increases the validity and generalizability of the study, it creates the need for the exploration of complex phenomena. This move has significantly enhanced the ability of individuals to explore various phenomena.
2. This study design explores a concept before it is validated, thus allowing for greater versatility in discovering new ideas discovered in the qualitative approach (Gogo and Musonda, 2022). As a result, this research has undertaken a sequential exploratory mixed method research to investigate the psychosocial impact of the COVID-19 pandemic on Australia-based West Africans who experienced the 2014-2016 EVD epidemic in West Africa.

3. A survey, which included closed-ended and text-based questions and interviews were used for data collection. Data collected in both processes were analysed separately, and then the findings from the quantitative component used to complement and explain emergent themes and concepts in the qualitative component of the study, which added to the study's rigour and validity. Below are the strengths and limitations of sequential exploratory research outlined in Table 3.

3.3 Philosophical Assumption Underpinning Sequential Exploratory Mixed Methods

The philosophical position informing this study is pragmatism. Pragmatism is a philosophical approach that allows the combination of some qualitative and quantitative traditions in investigating a complex phenomenon. Ontologically, pragmatists embrace both the singularity and multiplicity of reality in finding answers to research questions. Pragmatism is widely considered the most appropriate philosophical support for mixed research studies because of its flexibility in application to either multi or mixed-methods studies (Kivunja and Kuyini, 2017). This philosophical tradition is based on the proposition that researchers use the philosophical and/or methodological approach that works best for the particular research problem under investigation (Kaushik & Walsh, 2019; Kivunja & Kuyini, 2017).

Table 3. Strengths and limitations of Sequential exploratory mixed method research

Strengths	Limitations
The integration of the results of the study's qualitative component helped explain the findings of the quantitative part of the research.	It takes more time and expertise to carry out.
The findings from the quantitative data finetune the findings from the qualitative data.	It is more expensive than just conducting a single study.
Integration of the qualitative study findings provides an opportunity to explain the result and further study.	-
A combination of results leads to complementarity, where the individual weaknesses of both quantitative and qualitative studies were cancelled out.	-
It is a vital tool for the exploration of novel phenomena.	-

Early pragmatists believed that the researcher's experiences and ideas were relevant. Pragmatists further consider the multiplicity of explanations about how the world is perceived by the investigator. Thus, according to Tashakkori & Teddlie, (2010), this paradigm encourages the researcher to select and incorporate methods most suitable for answering the research questions Tashakkori & Teddlie, (2010) to arrive at the truth. Pragmatists maintain that truth is not fixed. Early proponents of this paradigm saw the need for flexibility by utilising mixed method procedures when investigating complex social and public health issues, such as determining the psychosocial impacts of the COVID-19 pandemic on Australia-based West Africans who survived the 2014–2016 EVD epidemic, and thence the basis for this mixed study. Hence, the significance and rationale for choosing pragmatism as a philosophical basis for investigating this complex phenomenon require a philosophical paradigm that will assist the researcher in having a clearer view of reality. The most significant quality of mixed study is the utilisation of either a single or multiple paradigms in a single study (Ghiara, 2019). Though a researcher could use any of the following approaches: dual/ dialectical, pragmatist and holistic/single paradigm. In other words, the researcher can view the world from multiple angles based on the following:

- ❖ First, the researcher embraces the dual/ dialectical approach and therefore combines two paradigms within a study.
- ❖ Second, a pragmatic and wholistic approach can be utilised. This approach is based on the principle that individual paradigms do not affect each other in a

study and therefore can be integrated without causing any harm.

- ❖ Third, according to Crotty, (1998),

if a paradigm is suitable, it can be used in a mixed method study. The pragmatic approach was utilised in this research to enable the researcher to understand the philosophical assumptions in this study the characteristics of a sequential exploratory mixed method research which is employed in this study is described below.

This research is a sequential exploratory mixed method which implies the deliberate combination of two different approaches (quantitative and qualitative) or research methods to investigate a social phenomenon. The quantitative aspect was considered the primary research component, and the qualitative the subsidiary. Both investigations were done separately, with the quantitative first and then the qualitative following. The results of these two individual studies were integrated, and elements of the qualitative findings reemphasised findings in the main quantitative segment.

4. QUANTITATIVE RESEARCH APPROACH AS EMPLOYED IN THE SURVEY

A survey is a systematic approach to collecting data with the primary aim of describing features or characteristics of an event(s) or occurrences among a particular population. Surveys utilise various forms, such as interviews, and standardised questionnaires, including handwritten and electronic (Ponto, 2015). Data collection tools and questions are presented in a

simple format for better understanding and response to the research objective, which adds to the reliability of the study. Ingham-Broomfield (Ingham-Broomfield, 2015) agrees that though surveys offer the opportunity to collect a large amount of data, there are concerns about their validity, especially when some data needs to be included. Additionally, using surveys for data collection is described as faster, cheaper, and easier Hlatshwako et al. (2021), so using other methods of data collection during large-scale events, such as the COVID-19 pandemic will be impractical. Hlatshwako et al. (2021) adds that increased use of surveys results from easy

access to broadband services and participants' preference for an online survey over other data collection methods. Siedlecki et al., (2015) assert that survey has been widely utilised in generating knowledge in nursing research. In convergent mixed research, the individual studies are integrated concurrently as the study progress. Therefore, the survey is considered the ideal method of collecting data for assessing the quantitative aspect of the psychosocial impacts of the COVID-19 pandemic on West Africans based in Victoria, Australia. Table 4 outlines the strengths and limitations of surveys.

Table 4. Strengths and limitations of quantitative research

Strengths	Limitations
A comprehensive collection and analysis of data that gave an insight into the problem of interest were done.	Impossible to discuss the results of the research
Though there is no hypothesis in this study, the study's main objective was investigated, and accurate data was collected through an online survey. This data provided strong evidence of the issues investigated.	The research environment could not be controlled because data were collected in a survey via Zoom
It provided the basis for more investigation of this topic and integration of the other research components.	Since the research topic involved investigating social and psychological events, closed-ended questions alone could not provide in-depth responses to the research questions
It provided data that could be described.	The data collection tools provided options that limited the participants' responses only to those required by the tools

Table 5. Strengths and limitations of quantitative research as employed in a survey

Strengths	Limitations
A comprehensive collection and analysis of data that gave an insight into the problem of interest were done.	Impossible to discuss the results of the research
Though there is no hypothesis in this study, the study's main objective was investigated, and accurate data was collected through an online survey. This data provided strong evidence of the issues investigated.	The research environment could not be controlled because data were collected in a survey via Zoom
It provided the basis for more investigation of this topic and integration of the other research components.	Since the research topic involved investigating social and psychological events, closed-ended questions alone could not provide in-depth responses to the research questions
It provided data that could be described.	The data collection tools provided options that limited the participants' responses only to those required by the tools

5. QUALITATIVE RESEARCH APPROACH AS EMPLOYED IN THIS STUDY

According to Denzin & Lincoln (2005) , 'Qualitative approach involves the use and collection of a variety of empirical materials that describe routine and problematic moments and meanings in individuals' lives.' Qualitative research concentrates on investigating events in their natural environments to have a better understanding. Its mainstay is the exploration and description of events. An interdisciplinary approach cuts across disciplines. It can investigate social events in both social and traditionally core scientific domains. Qualitative approach is a widely used approach in investigating descriptive social phenomena. It concentrates on finding the who, what, and why of an issue requiring more information to understand an event (Doyle et al., 2020). It is an approach that provides information to refine and develop questionnaires. It helps develop a hypothesis for further research Kim et al.,(2017).

It can be used to investigate an experience or event singularly, or it can be used in mixed research such as the current study. It utilises a non-probability purposive sampling technique to recruit participants. It can give direct answers for the occurrence of an event (Sandelowski, 2010). The strengths and limitations of qualitative descriptive research are displayed in Table 6.

5.1 Free Text in the Survey

Free text surveys are a data collection technique in which the participants can respond to questions in their own words in a survey. Free texts have increased intrinsic value in survey (Rich et al., 2013). These questions are mainly open-ended, which provides data that could be analysed by coding, utilising computed algorithms known as text analytics and word cloud (Cunningham and Wells, 2017). Table 7 outlines the strengths and limitations of free text/ open-ended survey questions.

Table 6. Strengths and limitations of qualitative research

Strengths	Limitations
It provides enriched data because of its flexibility in collecting data, creating awareness about individuals' perceptions of an issue	The number of participants is usually small, which affects the generalisation of findings if it is stand-alone research
It provided answers to the research questions, which helped in policy matters	It uses a non-random sampling technique for selecting participants, which can cause selection bias
It provided a platform for the participants to respond freely to questions they were vastly knowledgeable about	It is descriptive and non-statistical
It gives the researcher first-hand information about an event, especially when probing participants' experiences	-
It allows participants to add their voices to issues under investigation	-

Table 7. Strengths and limitations of free text/open ended qualitative research

Strengths	Limitations
It gives the participant a voice to air out their feelings about the topic under investigation.	Participants can become critical of events.
It provides enriched data that reinforces findings.	Sometimes free text responses need to be thoroughly analysed.
Participants can give a detailed account of their previous experiences.	Responses can sometimes be misunderstood when free texts are included in closed-ended question surveys.
Free text surveys provide essential information that closed-ended questions cannot.	-

Table 8. Strengths and limitations of interviews

Strengths	Limitations
It captures all of what the participant said in the interview.	It is easier to maintain confidentiality if hard copies of the transcript are saved correctly.
It offers the interviewer the opportunity to familiarise themselves with the content of the interview.	It can be tiresome, especially when the computer needs to understand words.
The physical or electronic document of the interview is generated.	-
Electronic transcription saves time.	-

5.1.1 Interviews

Interview transcripts are either handwritten or electronically printed verbatim from an oral interview. The process includes listening to the interviews, writing drafts copies, proofreading, and refining the responses. The strengths and limitations of utilising interviews are stated in Table 8.

6. SUMMARY

6.1 Significance

The significance of this study is that it elucidates the methodologies that underpin the selected methods in the research project. The expected findings are that there will be reports of elevated psychosocial health problems which includes, fear of infection, elevated levels of anxiety, depression and difficulty in coping with another viral disease. A further expectation is that participants will build on their previous experiences with the EVD epidemic management in West Africa and apply to the COVID-19 infection prevention and control measures in Australia.

One of the strengths of utilising quantitative research is that it maintains objectivity where the researcher tries to establish a cause-and-effect relationship. Conversely it does not allow the researcher to be involved and misses on vital and deeper understandings. For the qualitative research, subjectivity gets the researcher immersed in the study which allows him/her to capture nuances which otherwise can be missed in the quantitative approach. It gives the participant a voice to delve deeper into the research topic. A combination of both approaches in one study nullifies the drawbacks of both approaches thus increasing the rigour and validity of findings.

6.2 Implication

The study has covered a wide range of psychosocial health matters that have negatively impacted the mental and physical health of minority migrant people in Australia who have experienced two major infectious disease outbreaks in rapid succession. Though the study appears to be extensive in covering 7 objectives, it has provided an opening for researchers to widen their scopes of investigations on this phenomenon in similar situations.

7. CONCLUSION

This article covered the research approaches, philosophical assumptions, research paradigms for quantitative and qualitative studies. Data for this narrative was collected for the purpose of individual's targeted research agenda. Hence narration has aimed at elucidating justification for the selection of sequential mixed methods approach in studying the *psychosocial impacts of COVID-19 pandemic on West Africans who survived the 2014-16 Ebola Epidemic*.

CONSENT AND ETHICAL APPROVAL

It is not applicable.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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