Understanding Work Stress in Crisis Translation:

An empirical study on crisis translators' experience in the context of the coronavirus disease (COVID-19) pandemic

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Abstract

This thesis set out to investigate work stress experienced by crisis translators who may be professionals or ad hoc volunteers performing translation tasks arising from the COVID-19 pandemic. It is motivated by the historical gap in research in Translation Studies on translators' work stress in general and crisis translators' stress in particular. crisis translation (CT) has emerged relatively recently as an interdisciplinary field of research and practice in reference to translation conducted in crises in response to multilingual crisis communication. In this research, "work stress" is defined and informed by the job demands-resources (JD-R) model widely used in occupational stress research whereby job demands are treated as stressors with job resources functioning as support, and their combined effects as consequences. The initial questionnaire survey conducted in 2018 with 48 professional translators in New Zealand revealed the nature of work stress in their routine work with little data in CT contexts due to the respondents' lack of CT experiences. Then the sudden outbreak of COVID-19 in 2020 inadvertently provided this research with a real-life global crisis setting, in particular as something first and acutely experienced by crisis translators in China. With this new focus, the main study collected 124 valid responses by crisis translators based in China and elsewhere, using the validated questionnaire from the initial study, yielding quantitative data to narrowly identify the factors causing crisis translators' work stress. This was followed by interviews with 25 Chinese crisis translators to gain detailed qualitative data. The findings show that emotional demands, unfamiliarity with the translation content, and time pressure were the most significant job demands that resulted in physical and psychological symptoms, including anxiety, fatigue, a lack of self-efficacy, and sleep problems. Peer support, translation tools, feedback, self-efficacy, and coping strategies emerged as important resources associated with positive outcomes, such as a sense of accomplishment and satisfaction, up-skilling and continuous learning. The factors supported

by the empirical data provide the basis, albeit as an initial attempt, for a set of best practice guidelines for CT stakeholders in mitigating work stress when engaging in crisis translation.

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Chapter 1 – Introduction

1.1 Research Background and Context

This thesis set out to investigate work stress experienced by crisis translators who may be professionals or ad hoc volunteers performing translation tasks arising from the COVID-19 pandemic. It is motivated by the historical gap in research in Translation Studies on translators' work stress in general and crisis translators' stress in particular. The unprecedented global impact of the COVID-19 pandemic has brought the importance of multilingual crisis communication to the fore. This resulted in COVID-19 being "history's biggest translation challenge" as every individual needs to have access to health information (McCulloch, 2020).

Crisis translation (for definition see Section 1.2) has emerged relatively recently as an interdisciplinary field of research and practice in reference to translation conducted in crises in response to multilingual crisis communication. Despite the increasingly important role of translation in various crisis settings, such as the 2010 earthquake in Haiti (Munro, 2013), the 2011 Great East Japan Earthquake (Cadwell, 2015), and the 2014 Ebola outbreak (O'Brien & Federici, 2020), very little attention has been paid to implications of engaging in such activity for translators' physical and psychological health.

Moreover, the COVID-19 pandemic has presented additional challenges and stress factors for translators and interpreters. The 2021 European Language Industry Survey found that there was a lack of work-life balance among languages professionals due to the impact of the pandemic, which was caused by factors such as a heavy workload, changing/urgent deadlines, long hours/weekend/evening work, and care duties/working from home (European Commission, 2021). Similarly, according to the results from FIT (International Federation of Translators) Europe's COVID-19 Take 3 survey, 40% of the surveyed language professionals expressed that their mental health was affected by the pandemic, lockdown and crisis. The

primary reason was added stress with trying to strike a balance between childcare/home-schooling and maintaining a business at home (O'Shea, 2020).

The two surveys confirm the existence of work stress during the pandemic but only touched upon a limited aspect of work stress. Due to the fact that little research has been conducted in understanding work stress that translators encounter, there is a dire need of such research in the context of the current pandemic-ridden world. Thus, the specific focus of this thesis is to enquires into translation work stress in the context of the COVID-19 pandemic and attempts to provide solutions to reducing work stress to ensure translators' psychological health and facilitate their work.

As New Zealand frequently experiences natural hazards and emergencies and is ranked as high-risk for a range of natural disasters (ThinkHazard, 2020), I initially intended to focus on the New Zealand context to investigate crisis translation work stress. Nevertheless, the sudden breakout of the Coronavirus disease 2019 (COVID-19) changed my research site as it was immediately relevant and timely to investigate a global crisis unfolding, instead of examining the impact of a local past major disaster, i.e., the Christchurch earthquake (as discussed in Chapter 2), that happened a decade ago in New Zealand.

Despite increasing international cooperation, in the event of a crisis in a non-English speaking region, involving an international rescue team, being able to speak English could affect the effective rescue process and increase the affected population's survival (O'Hagan, 2018). However, although English is assumed to be the lingua franca across the world, it is by no means used in all regions and countries (Piller, Zhang, & Li, 2020). In the context of globalisation and migration, "the right to information" is increasingly adopted as a basic human right (Mendel, 2008, p.3). As communication in crises is an indispensable part of crisis management (Harvard Humanitarian Initiative, 2011), the right to access key and

timely information for all members of the society should also be acknowledged as a human right (Scarnecchia, Raymond, Greenwood, Howarth, & Poole, 2017).

Translation in crises is "a perennial hidden issue" which is yet often neglected, resulting in a failure to enable governments and people to access effective information in their native languages (Harvard Humanitarian Initiative, 2011, p.24). This contrasts with increasing research focused on the application of crowdsourced translation (i.e., "a practice that involves Internet users, who may or may not have formal training as translators, collaboratively translating online texts for little or no financial reward" [Dolmaya, 2019, p. 124]) in crisis scenarios, serving to highlight that translation is essential to enable communication between responders and affected populations in crisis scenarios (Lewis, 2010; Lewis, Munro, & Vogel 2011; Munro 2010; Munro 2013; Rodriguez Vazquez & Torres del Rey, 2019).

One of the crucial roles of crisis translation is user empowerment (Taibi, 2017). In crisis communication, user empowerment can be realised by providing useful information for the population in particular need (Reynolds, Deitch, & Schieber, 2007). In crises and emergencies, the population who are underprivileged and disenfranchised are more vulnerable and at a higher risk because they may not have the equal access to social support and public information due to language barriers (Reynolds et al., 2007). This issue can be addressed through translation so as to provide them with all the necessary resources (O'Brien, 2016).

Translation plays a critical role in all phases of a disaster, across mitigation (i.e., emergency prevention activities), preparedness (i.e., plans or preparations before an emergency occurs), response (i.e., response activities taken to save lives during an emergency), and recovery (i.e., recovery activities taken to return to a normal situation after an emergency) (Haddow, Bullock, & Coppola, 2017). In terms of preparedness and

response, one of the challenges of crisis communication is to deliver messages to the minorities who do not speak the dominant language in the community (Quinn, 2008). Crisis communication broadly refers to "the collection, processing, and dissemination of information required to address a crisis situation" (Coombs, 2012, p. 20). It is critical for the government to engage and work together with minority communities to give pre-event education and reduce mortality (Quinn, 2008). While Quinn (2008) did not mention the role of translation in such partnership and engagement, these cannot be accomplished without translation (O'Brien, 2016).

In heterogeneous societies with multicultural and multi-ethnic communities or culturally and linguistically diverse (CALD) communities, research shows customised information to respective target populations is more effective in terms of crisis communication (e.g., Kar, Alcalay, & Alex, 2001; Lindell & Perry, 2004; Quinn, Thomas, & McAlister, 2008; Vaughan & Tinker, 2009; Wylie, 2012). Tailoring crisis planning and communication to heterogeneous groups is an indispensable part of successful crisis preparedness (Olofsson, 2011). In Olofsson's (2011) research on organizations' crisis preparedness in heterogeneous societies, the interview respondents (i.e., crisis managers and risk communicators in six Swedish municipalities) who had undergone crises involving heterogeneous populations highlighted the importance of communication with individuals from their own communities. One of the respondents noted that minorities "definitely need more information, preferably in their mother tongue" (p. 222). Olofsson (2011) also identified the role of a "Culture Interpreter" in the municipality with a diverse labour force during crisis management, with one respondent explaining that the Culture Interpreter consisted of administrative staff with culturally and linguistically foreign backgrounds who worked as translators and interpreters in crisis scenarios, covering 10 prevalent languages in the country.

Yet, one issue arises out of meeting multilingual communication needs in times of crises that those engaged in translation, be them professionals or volunteers, during crises face a range of challenges that may have negative effects on their wellbeing. For example, following the 2010 Haiti Earthquake, a humanitarian translation crowdsourcing initiative called "Mission 4636" was conducted to translate text messages sent by the crisis-affected community as part of emergency response (Munro, 2010). Although Mission 4636 appeared to be a successful strategy for response, benefiting the crisis-affected community, their friends and families, and the humanitarian agencies, unfortunately, like any humanitarian aid, people who worked for it suffered from stress (Munro, 2013).

While stress is "a reaction to less dramatic and actual life events" (Australian Institute of Health and Welfare, 2020, Difference between stress and trauma section), trauma is "an experience of extreme stress or shock that is/or was, at some point, part of life" (Silva, 2014, p. 1). Compared with professional aid workers, volunteers were more vulnerable to psychological trauma due to a lack of training (Munro, 2013). This potential psychological impact might not be easily identified as volunteer translators who work remotely (i.e., translating via online crowdsourcing platforms) were unable to make the most of the support from face-to-face communication (Munro, 2013). Despite not losing any family or friends in the earthquake, one volunteer of Mission 4636 reported suffering from insomnia and depression for weeks afterwards (Munro, 2013). The stressors (i.e., stimuli that cause stress [Lazarus, 1990]) for the volunteers came not only from a heavy workload of processing information but also from emotional effects (Munro, 2013). Munro (2013) quoted a comment by one of the most engaging volunteers who worked as a translator:

Like many other Haitian immigrants in the US, I watched with horror, despair, and helplessness the media coverage of the earthquake that devastated my home country and destroyed so many lives in Haiti. Having lived in the US for nearly two decades, I

have never felt so disconnected from my home country and people than at that moment. I was not there to help or even be there, to pay witness to their suffering, in their greatest moment of need. Grief ridden, overwhelmed with guilt and sadness, I sought ways to help by providing assistance to loved ones in Haiti and making financial contributions to various aid agencies in Haiti. But, it still did not feel enough. (p. 235)

Munro's (2013) report is among the very few, if any, studies that paid attention to aspects affecting translators' psychological health during crises. In this case, the main reason for translators' stress came from their heritage link to Haiti, yet this aspect is still discussed in a mostly cursory manner. The only solution discussed in the study to translators' potential psychological trauma is an online platform where volunteers can connect with one another, sharing their experiences and reactions to the disaster (Munro, 2013). It seems that no professional intervention was involved in addressing their psychological issues. Regardless of whether or not the lack of professional psychological intervention was due to limited resources or subjective neglect, it is doubtful whether peer support in the Haiti case would have been sufficient enough to resolve volunteers' psychological difficulties triggered by working during the earthquake given the reported physical and psychological symptoms (e.g., insomnia and depression) by the volunteers (Munro, 2013).

Munro's (2013) research demonstrates an example of potential negative psychological outcomes of engaging in translation, even though they volunteered, during a crisis due to a lack of attention and support. More discussion in this regard will be provided in Chapter 2. With increasing migration and multilingualism in New Zealand where tourism is also a key industry (Takagaki & Ishii, 2019), in the event of a crisis, communication needs to be considered in multilingual and multicultural contexts, where language mediation through translation and interpreting plays a critical role. In particular, the increasing need for crisis

translation in response to disaster scenarios which typically develop unexpectedly demands a better understanding of stress factors to ensure language mediators' wellbeing and performance.

Translators who work in crisis, as opposed to routine, settings face a number of additional challenges, including time pressure, poor working conditions, ethical dilemmas and emotional distress (e.g., Munro, 2010; Munro, 2013; Quinn, 2008; Shackleton, 2018; Wylie, 2012). Moreover, the COVID-19 pandemic has accentuated specific challenges and difficulties in crisis translation, such as the linguistic repertoire (i.e., new terms) brought by the new disease (Piller et al., 2020), a lack of government planning in multilingual crisis translation (Zhang & Wu, 2020), and limited language proficiency of volunteer translators (Zheng, 2020). However, research that focuses on these aspects is only just emerging (Piller et al., 2020). In an attempt to fill this lacuna, the present study, which is located primarily in Translation Studies, specifically in community translation, draws on the perspectives of crisis communication and occupational health psychology (more discussion in Chapter 3), making it interdisciplinary in nature (see Figure 1.1). Community translation and interpreting is also known as public service translation and interpreting that disseminates public service information across members of society, including culturally and linguistically diverse (CALD) communities (Hale, 2007; Taibi, 2011). Within TS, crisis translation can be considered as a subset of community translation with some overlap with community interpreting.
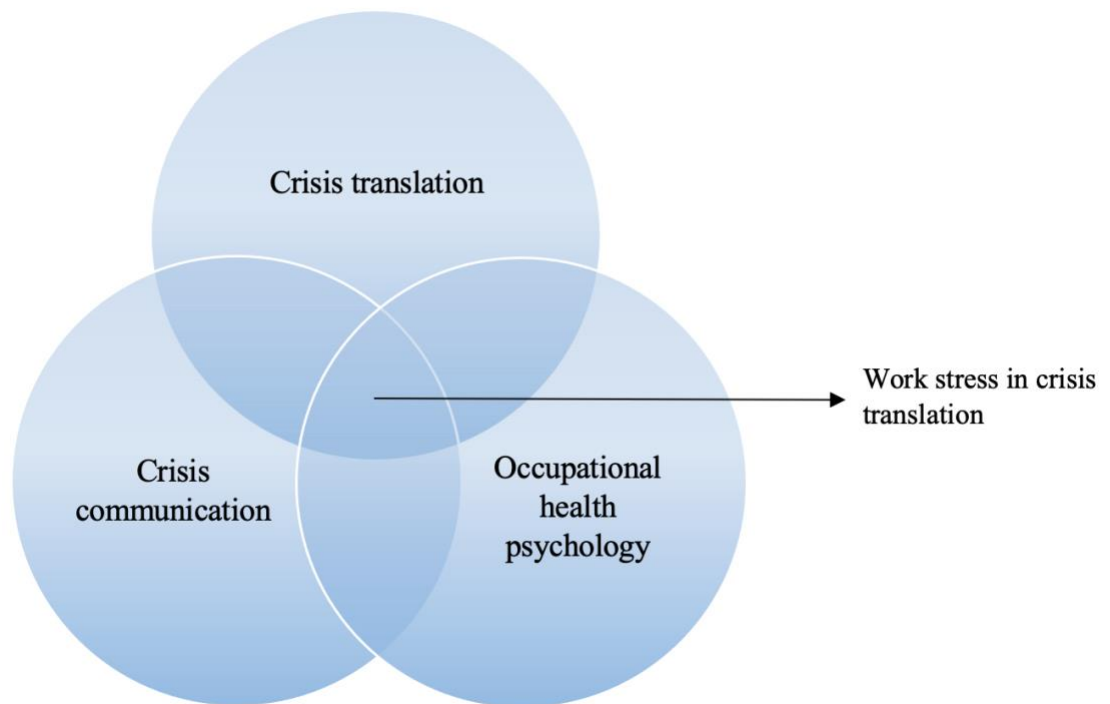
Figure 1.1 Scope and location of this thesis

This figure demonstrates the specific scope and location of this thesis.

1.2 Definition of the Key Terms

This section provides the definitions of the key concepts in this thesis which are drawn from different disciplinary fields:

Regarding the definition of a crisis, the terms of emergency, disaster, and crisis are often used interchangeably and in combination though they are differentiated in some cases to refer to different timelines or scales of influence (Al-Dahash, Thayaparan, & Kulatunga, 2016). For the purpose of the present study, a *crisis* is taken here to be "an event, or series of events, that is non-routine, poses a significant threat and requires a response to mitigate the harm" (Hunt, O'Brien, Cadwell, & O'Mathúna, 2019, p. 25).

In the present study, *translation* (i.e., the written form of interlingual meaning transfer from one language to another [Federici, 2016]) is treated as a specific concept. While translation and interpretation (or *interpreting,* i.e., the oral form of interlingual meaning transfer from one language to another [Federici, 2016]) are distinct in TS, it is acknowledged

that the boundaries between them may be blurred in certain crisis settings where translators are required to perform both translating and interpreting (O'Brien, 2016).

As crisis translation is a concomitant field in both crisis communication and community translation, the definitions of these two areas are presented here in order to shed light on the nature of crisis translation. Regarding *crisis communication*, it aims at "preventing or lessening the negative outcomes resulting from a crisis", often having "an informative function" through "clear directions on the current state regarding the crisis and what actions should now be taken" (Spence, Lachlan, & Griffin, 2007, p. 541). Community translation, a.k.a. public service translation, is yet to be fully developed in TS in spite of its wide range of applications in the public service. Despite the absence of a unified definition, the present study employs the most relevant one proposed by Taibi (2017) that is a "specific and special subfield of translation", which intends to "empower disempowered social groups" providing them with "equitable access to public service information and participation in their society" (p. 2).

Thus, based on the definitions of crisis communication and community translation, the working definition of *crisis translation* in the present study is translation and interpreting practice conducted by individuals who may be "trained or untrained linguists" (Federici & Cadwell, 2018, p. 22) in the context of crises in order to prevent and/or lessen the adverse outcomes a crisis may inflict on its stakeholders. The term crisis translator, in turn, refers to an individual who participates in crisis translation. This definition extends the initial definition used by the International Network on Crisis Translation (INTERACT) which strictly limited the scope to "the translation of written information" (INTERACT, 2017).

Crisis translators consist of three groups, bilinguals/multilinguals, student translators/interpreters, and professional linguists. Bilinguals/multilinguals are those who can speak two or more languages without any formal specialised qualification in

Translation/Interpreting Studies and do not work professionally as paid translators/interpreters. Student translators/interpreters are those who are working toward a diploma/degree/certificate in Translation/Interpreting Studies. Professional linguists are those who have obtained a diploma/degree/certificate in Translation/Interpreting Studies and/or practice translation/interpreting as a professional, paid service.

Second, based on the different types of recruitment/employment, crisis translators are categorised into volunteers and professionals. Volunteer translators/interpreters are those who voluntarily participate in ad hoc, sometimes relatively urgent tasks, mostly without remuneration though in some cases, they are paid by the organiser (e.g., Wang, 2019). Professional crisis translators/interpreters are those who conduct crisis-related translation/interpreting practice due to the specific circumstance. Regardless of their employment status (e.g., self-employed, part-time, or full-time), usually, their clients include but are not limited to a language service provider, a related government body, or a corporate client (Shah, Velasquez, & Song, 2020; Wang, 2019; Zhang & Wu, 2020). Crisis translators therefore consist of bilinguals/multilinguals, student translators/interpreters, and professional linguists who are highly skilled and experienced (see Figure 1.2).
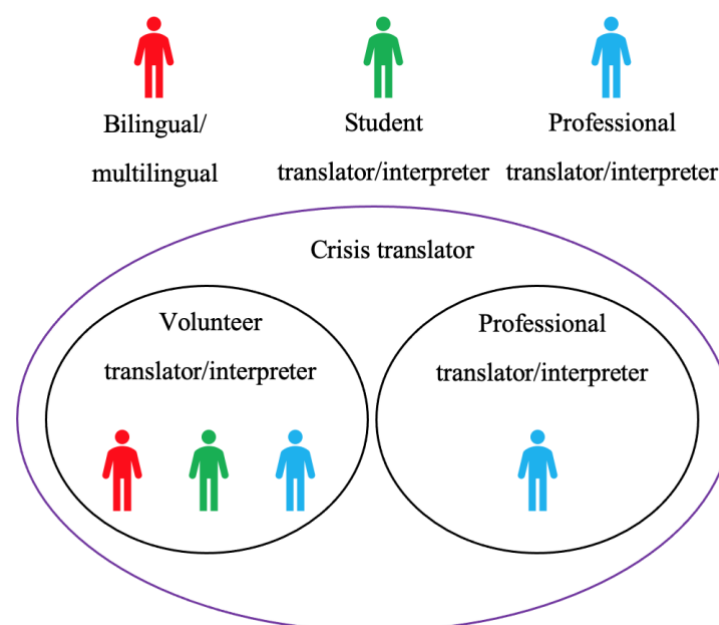
Figure 1.2 Typical participants of crisis translation

This figure demonstrates the overall mix of characteristics among translators/interpreters in crisis translators.

In occupational health psychology, *work stress* is defined as "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker", which can lead to poor health and even injury (National Institute for Occupational Safety and Health [NIOSH], 2014, p. 6). *Stressor* refers to a stimulus that causes stress (Lazarus, 1990). *Wellbeing* has a broad scope that incorporates both physical and mental health (Witte, 1999). *Mental health*, or *psychological wellbeing*, refers to "both the absence of symptoms of mental ill health and the presence of positive affective and cognitive experiences" (Grover, Teo, Pick, Roche, & Newton, 2018, p. 970).

1.3 Research Trajectory, Rationale and Research Questions

To provide the reader with the rationale of the projects undertaken in this thesis, this section presents a summary of the research trajectory in chronological order.

As the topic of crisis translation had been gaining academic interest and my supervisor was a member of the INTERACT project, I initially proposed a project looking at crisis translation work stress in the New Zealand context. Specifically, the project focused on the 2010 and 2011 Canterbury earthquakes characterising a severe crisis in New Zealand over the past decade. As I began to review the literature on this topic, I struggled to find theoretical and empirical evidence of translators' work stress as there had been a lack of studies on this topic. Thus, to study crisis translation work stress, the first step was to conduct a questionnaire survey on work stress in translators' routine work among the New Zealand professional translators.

What emerged from the initial study was the challenge in collecting stress-related data in direct connection to crisis settings (when the majority of the respondents were not directly

involved in crisis translation). Due to the struggle with a methodology to gain in situ data, I designed and conducted an experiment simulating a crisis scenario. As it was a pilot study and the data quality was unsatisfactory, it was not considered as a formal project in this thesis, as briefly outlined as follows:

The experiment consisted of two conditions, a routine work scenario and a simulated major earthquake scenario. Three participants, a professional translator, a postgraduate student in TS, and a bilingual with no experience and educational background in translation, were asked to translate a 150-word text on computer from English to their first language, i.e., Simplified Chinese in each scenario. The translation task for the routine work scenario was an abridged and adapted text sourced from the Immigration New Zealand website that translators would work on in real life; the text for the crisis scenario was news updates of a major earthquake. In the routine work condition, no type of physical stressors was present; in the simulated crisis scenario, the stressors included a two-min video clip on an earthquake news report before the translation task and 10-min background noise of an earthquake news report during the task.

Their stress levels were measured and collected in two ways: a non-invasive, wearable galvanic skin response (GSR) device (i.e., objective data) and self-report stress levels through questionnaires (i.e., subjective data). Stress is a physiological reaction to physical and/or psychological demands affecting the physical and emotional well-being (Ciabattoni et al., 2017). When individuals are emotionally aroused, the electrical conductivity of the skin changes. The autonomic activation of sweat glands is unconscious behaviour that is modulated by autonomic nervous activity. Thus, GSR is an objective and sensitive measure detecting the change in skin conductance (IMotions, 2020).

Unfortunately, it turned out that the quality of the physiological data was unsatisfactory. As the GSR device was attached to the participants' hand and sensitive to

movements, there was too much noise in the data due to the inevitable hand movement when the participants were typing. Nevertheless, there were several learnings from the pilot study. First, the self-report stress levels of all the participants were higher in the crisis scenario. Second, the stressors that emerged out of the experiment included time limit, unfamiliarity with the crisis related content, and emotional impact of the video clip, simulating a crisis situation.

Admittedly, it is inevitable that a controlled laboratory setting is different from the real working environment. As I was doubting whether a simulated experiment was a reliable and valid approach to understanding translation work stress in crises, the sudden outbreak of the COVID-19 pandemic provided me with an opportunity to collecting empirical data directly from those who have engaged in crisis translation during the pandemic. This allowed me to access an authentic context to pursue my original interest in understanding work stress for translators/interpreters in crises/emergencies so that they can be better supported.

Through the INTERACT links at the University of Auckland (UoA), I gained access to a crisis translation team at the Office of Foreigner Affairs in the Municipal Government of Wuhan, China. This provided a valuable window through which to collect empirical data from those who carried out COVID-19 related crisis translation work. Therefore, I adopted the widely applied and validated methodology in TS, i.e., the questionnaire and interview survey, to look into work stress in crisis translation and the impacts on the translators'/interpreters' wellbeing during the pandemic. Due to the far-reaching impact of the crisis on the entire world, the scope of the present study was thus shifted from New Zealand to focus on crisis translators primarily in China and elsewhere, which was the epicentre with the first outbreak of the pandemic.

Despite the change of my research focus, the results of the initial study contributed to the design of the main study. Thus, the main study in this research project turned out to be

based on an online questionnaire and interviews, providing up-to-date empirical evidence, both quantitative and qualitative.

The scope for a crisis setting of this thesis is limited largely to the COVID-19 pandemic using the primary data gathered from crisis translators in China. Given the objective of investigating work stress in crisis translation during the COVID-19 pandemic to ensure crisis translators' wellbeing and facilitate their work, we aim to answer the overarching question: **what factors contribute to work-related stress among COVID-19 crisis translators with what impact?**

To operationalise the main questions, subsidiary research questions were developed. As there is no prior work from TS literature which the present research can draw on directly, this led to the use of the framework of the job demand-resources (JD-R) model. This model is a comprehensive and flexible framework for evaluating job and personal characteristics that have an impact on individuals' health and wellbeing and the corresponding outcomes (Schaufeli & Taris, 2014). It has been widely used in research on work stress in an extensive variety of occupations and industries (Bakker & Demerouti, 2007). The purpose of the application of the JD-R model is to systematically examine job demands, resources and outcomes in crisis translation, which casts light onto and provides the rationale for the methodological design in this study. Chapter 3 will further explain how subsidiary questions were developed based on the JD-R model.

Regarding stress management in times of crises, two frameworks, the Crisis and Emergency Risk Communications (CERC) manual (U.S. Department of Health and Human Services and Centers for Disease Control and Prevention, 2018a) and Psychological First Aid (PFA) (World Health Organization [WHO], War Trauma Foundation, & World Vision International, 2011) have been widely used by practitioners (for details see Chapter 6). They provide important insights into evidence-informed practices for maintaining field workers'

physical and psychological wellbeing in response to a crisis. The principles of CERC and PFA provide practical suggestions for coping with stress during crises that this thesis can draw on in reference to managing stress in crisis translation. As for the practical implications of the present research, we will propose a set of best practice guidelines for engaging in crisis translation, referring to and adapting the frameworks of CERC and PFA. This will be further discussed in Chapter 6. The next section will provide the structure of the thesis.

1.4 Structure of the Thesis

The thesis situates its arguments mainly in the small body of literature in the domain of TS on the topics of stress factors in translation and interpreting and also engages with specific literature on community translation and interpreting that focused on crisis settings and crisis communication to ensure that all important themes are considered. These themes include stressors in routine translation and interpreting work, crisis translation as an emerging field, and high-profile examples in New Zealand and global contexts. A detailed review of the above literature and of the academic debates therein is presented in Chapter 2.

Chapter 3 first discusses a theoretical framework, job demands-resources (JD-R) model, which is an occupational stress model from occupational health psychology. The JD-R model serves as an analytical framework. Then, research design is presented to illustrate the connection of the sub-questions in each study with the research question.

Chapter 4 provides the method, results, and discussion of the initial study. Based on the findings of the initial study, Chapter 5 presents the method and results of the main study that enable us to answer the three research questions.

Chapter 6 is the synthesis of this research to discuss the findings of the main study. We then introduce the principles of CERC and PFA as they provide potential solutions to coping with work stress in crisis translation. Next, informed by CERC and PFA, we propose the best practice guidelines for engaging in crisis translation. This is an example of the

application of the research findings and has a practical significance for those who respond to multilingual communication needs in times of crises.

Finally, Chapter 7 summarises the research findings, recognises its limitations, presents the contribution of this thesis to knowledge, and identifies prospects for future work.

Chapter 2 – Literature Review

2.1 Introduction

Compared with research on work stress in interpreting, which validates that interpreting, especially conference interpreting, is a highly stressful profession (e.g., Gile, 2009; Korpal, 2021; Obler, 2012), similar studies on work stress in translation remain sparse and cursory. This paucity of research has led to a lack of understanding of stress factors in the translation profession.

In particular, the present research enquires into work stress in the specific context of crisis translation. This literature review is structured as follows: it first provides a review of work stress in Translation Studies, with work stressors in interpreting and translation being examined respectively in order to discuss the implications for work stressors in crisis translation. Following this, we present research on community translation, interpreting, and health psychology focused on crisis settings and crisis communication, including several high-profile examples in global contexts and the local New Zealand context, respectively. The New Zealand context is relevant because of the INTERACT activities at the University of Auckland (UoA) (Federici & Cadwell, 2018; Federici, O'Hagan, O'Brien, & Cadwell, 2019; Federici, O'Hagan, Cadwell, Marlowe, & O'Brien, 2021; Shackleton, 2018). The concluding section highlights the gap the present study attempts to fill and illustrates its contribution to the current academic lacuna.

2.2 Research on Stress Factors in Translation and Interpreting

2.2.1 Work stressors in interpreting

Interpreting, especially conference interpreting, has long been recognised as a challenging and demanding job in which interpreters need to have the ability to work under high levels of stress (e.g., Bower, 2015; Korpal, 2016, 2021; Roziner & Shlesinger, 2010). Conference interpreting, which requires the interpreter to listen, analyse, comprehend,

interpret, edit and reproduce a speaker's utterance in real-time simultaneously (International Association of Conference Interpreters [AIIC], 2002), is perceived as a demanding profession that requires maximal concentration over a long period of time and an ability to deal with different subjects, accents, and unpredictable issues, all of which could become work stressors (Pöchhacker, 2011).

There are two surveys conducted by AIIC (2002, 2021) that investigate work stressors in conference interpreting. Although the first one was carried out two decades ago, it is still relevant to the current situation as the nature of simultaneous interpreting has not changed and AIIC did not re-conduct such survey since then.

AIIC (2002) conducted a mail questionnaire investigating its freelancers' and staff interpreters' job satisfaction, work stressors, burnout and their impacts on performance. According to the 607 completed and returned questionnaires, the most frequently mentioned stressors included fast speakers (78% of all respondents), speaker reading from the text (71%), frequent change of subject matter (64%), and lack of background material (60%). The levels of burnout used three indices, including mental and physical exhaustion, cognitive fatigue and mental stress. Compared to those of teachers, high-tech workers, and senior Israeli army officers, AIIC interpreters' mental stress levels were the highest out of the listed professions. In terms of health complaints, 53% of the respondents reported tiredness at work, 52% throat irritation and dryness, 35% drowsiness and 31% backache. Results suggest that conference interpreters face some work stressors beyond their control (e.g., fast speakers), and their burnout levels are higher than some other highly stressful professions (AIIC, 2002).

The latest AIIC survey was carried out to examine the effects of distance interpreting over the ZOOM online platform on interpreters' health and safety in the context of COVID-19 (AIIC, 2021). According to 37 respondents, 70% have experienced acoustic shocks (i.e.,

auditory injuries caused by sudden noises) while doing remote simultaneous interpreting (RSI), which forced 88% to take time off work to recover. 43% reported that they continue to suffer from the injuries and have not fully recovered. The respondents filed 103 injury reports since April 2020, more than triple the number of injury reports filed over the past 20 months. Regarding the quality of interpretation services, only 3% of the respondents reported that they are able to do as good a job doing RSI as they would for an in-person meeting most of the time. AIIC's two surveys indicated that remote working creates more challenges for interpreters and makes the already challenging work even more stressful.

A study on RSI also revealed its implications for interpreters' performance, health conditions, and objective measures of stress (Roziner & Shlesinger, 2010). It was found that remote conference interpreters experienced considerable psychological effects, including an increase in feelings of isolation and alienation. It recommended the introduction of technical support with the use of individually computerised workstations and a user-friendly working environment (Roziner & Shlesinger, 2010).

Although it is acknowledged that conference interpreting, as one of the mainstream and frequently used modes of interpreting, is highly stressful, other types of interpreting, such as sign language interpreting, can also lead to work stress. It was found that certain personality traits, including perfectionism (i.e., a person's striving for flawlessness and setting high-performance standards, accompanied by critical self-evaluations and concerns regarding others' evaluations [Flett & Hewitt, 2002; Stoeber & Childs, 2010]), played a part in coping with stress and burnout (Childs & Stoeber, 2012). A study that evaluated the association between sign language interpreters' perfectionism, perceived stress, coping resources, and burnout found that the interpreters' perceived stress served as a mediator between maladaptive perfectionism (i.e., inflexible and/or unattainably high standards, the inability to take pleasure in one's performance and uncertainty or anxiety about one's capabilities

[Hamachek, 1978]) and burnout (Schwenke, Ashby, & Gnilka, 2014). Specifically, maladaptive perfectionism is positively correlated with burnout, while adaptive perfectionism (i.e., high goals and personal standards and striving for the rewards associated with achievement while retaining the ability to be satisfied with one's performance [Hollender, 1965]) is unrelated to burnout (Schwenke et al., 2014). Therefore, it is important for trainers, administrators, and interpreters to understand the differences between adaptive and maladaptive perfectionism (Schwenke et al., 2014).

To investigate challenges in telephone interpreting, Wang (2018) conducted a questionnaire survey of 465 telephone interpreters in Australia. It has been found that interpreters perceived a number of challenges, including comprehension-related challenges (e.g., poor sound quality, a lack of non-verbal information), communication-related challenges (e.g., overlapping speech), and other challenges in telephone interpreting such as low remuneration, casual employment, work-related stress, and insufficient support from interpreter employers (Wang, 2018). The respondents used several strategies to deal with the challenges. One of the strategies to cope with work-related stress was exercising self-care (Wang, 2018). However, Wang (2018) did not specify what kind of self-care the interpreters used to destress. Therefore, it is unknown whether the self-care strategies specifically target telephone interpreters, or they can be generalised to the entire translation and interpreting profession.

Video relay service (VRS) interpreting, i.e., a video telecommunication service provided by sign language interpreters that allows Deaf, hard-of-hearing, and speech-impaired (D-HOH-SI) individuals to communicate over video telephones, is highly stressful as well, which can lead to burnout and high turnover rates (Bower, 2015). A survey on stress factors in VRS interpreting showed that the most highly rated stressors for VRS interpreters included managing calls in which the caller is angry with the interpreter, concern about the

length of time between calls, receiving a 911 call at the interpreter's station, concern about physical strain (e.g., pain, Repetitive Motion Injury, Carpal Tunnel Syndrome), and interpreting calls with limited contextual information (Bower, 2015).

A European Forum of Sign Language Interpreters (EFSLI) survey of VRS/VRI (video remote interpreting) provision found some disadvantages of such services, including challenges for interpreters (Calle, 2013, as sited in Llewellyn-Jones, 2019). Results showed that there is a negative effect on interpreting quality due to the interpreter not being present in the setting; the interpreter does not have pre-call time to adapt to a Deaf client's distinctive signing style; time-lag is likely to lead to misunderstanding; it is difficult for the interpreter to manage waiting time between calls; it is more challenging to deal with regional varieties of a sign language through VRS/VRI; and the working conditions are harder (Calle, 2013, as sited in Llewellyn-Jones, 2019).

It was suggested that interpreters should develop strategies to cope with work stress, therefore reducing the risk of burnout. For VRS managers and providers, they should provide more support to interpreters, including individual meetings, ongoing round table discussions, and in-house workshops to enable interpreters to assess their levels of burnout, share their experiences regarding burnout and stress and conflict management (Bower, 2015).

In conclusion, interpreting, especially conference interpreting, is proven to be a highly stressful profession with stressors including heavy cognitive load and mental and physical exhaustion (AIIC 2002, 2021; Korpal, 2016, 2021; Roziner & Shlesinger, 2010). In addition to conference interpreting, sign language interpreters also experience high levels of work stress. It was found that maladaptive perfectionism was positively associated with burnout (Schwenke et al., 2014). Particularly, VRS/VRI, as the latest step in the evolution of telephone services for the D-HOH-SI community, may also cause burnout with various stressors, including difficult callers, issues with time, receiving a 911 call, physical strain,

and issues of unfamiliarity (Bower, 2015; Llewellyn-Jones, 2019). However, among the research studies on interpreters' work stress, few has provided solutions to destressing, albeit Wang (2018) claiming that telephone interpreters exercised self-care to cope with work-related stress.

2.2.2 Work stressors in translation

While it is generally believed that interpreting is more stressful than translation, and limited academic literature acknowledges translation as a stressful profession, anecdotal evidence suggests that different types of stress affect translators. Some research studies have roughly touched upon the potential stressors for translators (e.g., Atkinson, 2012; Eszenyi, 2016; Szondy, 2016). It is not uncommon for translators to work under the pressure of tight deadlines (Szondy, 2016), e.g., game localisation (O'Hagan & Flanagan, 2018). Very often, the translator is unable to have a few days' breaks after the closing of a project because the client's last-minute requests for change or final formatting can delay the closing and even jeopardise the translator's launch of their next project. This places the translator in a dilemma of either turning down the extra requests related to the previous project or postponing launching their next project (Szondy, 2016). Hence, to ensure the quality of the translation, communication, negotiation, and time management are required, which can also involve a lot of effort and stress (Eszenyi, 2016; Szondy, 2016). It is suggested that translation students receive training in time management and stress coping skills (Eszenyi, 2016).

Additionally, due to the extreme diversity in the work mode of the profession, ranging from full-time professionals in permanent positions to freelancers who may work from time to time or have a heavy workload, translators may face strong competition that pushes their rates down (Day Translations, 2018). In the modern translation industry, translators are facing increasing technical and time-related pressure (Baker & Saldanha, 2019). For

example, technological advances have raised the expectations of translators' performance with less tolerance for errors, which intensifies individuals' stress levels (Atkinson, 2012).

In conclusion, issues of translation work stress are more diverse compared to interpreting, ranging from challenges of the translation task itself to difficulties beyond the task. To better understand translators' work stress, the following sections elaborate on specific stressors from different perspectives.

2.2.2.1 Work stress caused by technologies

With technological advances, translation and technologies have become increasingly interdependent (e.g., Littau, 2016; O'Hagan, 2019; Ruokonen & Koskinen, 2017). Translation technologies, including various translation tools used in computer-assisted translation (CAT), are now widely applied in the translation industry. However, machine translation (MT) (i.e., the use of software to translate text or speech from one language to another) tools may act as both a facilitator of and a hindrance to translation work as the interaction between them is rather complex (e.g., Bowker, 2005; Läubli & Green, 2019; Vieira, 2019). Their advantages and disadvantages depend not only on the MT tools per se but also on the end users' perception and experience (e.g., Koskinen & Ruokonen, 2017; Marshman, 2014; O'Brien, 2012; Ruokonen & Koskinen, 2017). This user perspective is discussed in detail in the following section.

On the one hand, there is exaggeration and over-expectation about the usefulness of MT, and this devalues human translators' hard work and cognitive effort (Ruokonen & Koskinen, 2017). On the other hand, translators' complaints about translation technologies do not target the technologies themselves, but rather the effects of technologies on their work experience, including related business practices and MT's low efficiency and errors (Koskinen & Ruokonen, 2017; Moorkens, 2020; Ruokonen & Koskinen, 2017). Thus, unless

technologies run smoothly and provide high-quality services for translators, they could be a source of work stress.

More recently, another potential work stressor for translators has been raised by the arrival of Neural Machine Translation (NMT). One of the challenges of NMT is fluent translation unrelated to the source text (Koehn & Knowles, 2017). This fluent sounding but semantically inappropriate translation may mislead the user, i.e., the translator, thus causing an extra cognitive load for post-editing to identify these types of errors (Koehn & Knowles, 2017).

2.2.2.2 The affective perspective

Translation Studies have gradually expanded the focus on the increasingly well-established cognitive perspective to embrace the affective perspective (e.g., Hokkanen & Koskinen, 2016; O'Hagan & Flanagan, 2018; Robinson, 1991; Rojo López & Naranjo, 2021), which touches on some emotional and psychological impacts on translators. A narrative approach was applied to investigate translators' emotional connection with the technologies involved in their professional practice (Koskinen, 2020; Koskinen & Ruokonen, 2017). In Koskinen and Ruokonen's (2017) study, 102 participants were asked to write letters to express positive or negative emotions and user experience of a given technology they used. Unlike Dillon and Fraser's (2006) survey in which junior translators had a more positive opinion of translation memory (TM) than senior translators, the study found positive emotions from both the novice and the more experienced translators outweighed the negative ones (Koskinen, 2020; Koskinen & Ruokonen, 2017).

However, translators were found to be frustrated with several technological issues, among which a lack of efficiencies, such as a prolonged waiting time for the computer or software to boot up and repetitive clicks needed to execute a simple task, were among the major causes (Koskinen and Ruokonen, 2017). Interestingly, most negative narratives were

about system errors, which caused high levels of stress. By contrast, participants did not make positive comments on an error-free system, illustrating a smooth system was considered as a norm while system errors were unbearable (Koskinen, 2020).

In Koskinen and Ruokonen's (2017) further analysis, narratives were categorised in a matrix, containing the quadrants convergent-positive, convergent-negative, divergent-positive and divergent-negative. Convergent was defined as human and technology heading towards the same direction while divergent as parting company from each other. It was found that the translator-computer interaction is more complex than the straightforward positive-convergent and negative-divergent relationships. Translators might praise technology when it surprised them in a positive way and complain about its passive over-compliance. For example, in the convergent-negative quadrants, a participant commented, "I'd rather you didn't let me visit trivial photo sharing websites and such when I'm in the middle of an assignment" (Koskinen & Ruokonen, 2017, p. 316).

Recently, translation process research (TPR) has started to examine translation and interpreting processes from the affective and emotional perspective (e.g., Rojo López, 2017; Rojo López & Ramos Caro, 2016; Shields & Clarke, 2011; Wittwer, 2007). Generally speaking, research studies have explored the effect of emotions on the translation and interpreting act from four perspectives: "the emotionality of source texts", "different processing styles", "translation quality", and "translation reception" (Rojo López, 2017, p. 372). Moreover, it is argued that four factors contribute to emotions in translation processes: "the translator's appraisal of the source text", "an incidental affect state induced by the surrounding context", "the audience's appraisal of the target text", and "the translator's own personal and professional experience" (Rojo López, 2017, p. 372).

Although exploration of emotional factors in TPR is an emerging area and results are far from conclusive, some of the findings are potentially relevant to translation work stress.

For example, it is argued that the translators' positive or negative appraisal of the source text may depend on whether the emotional words or phrases in the original text are consistent with or contrary to the translator's ideological stance (Rojo López, 2017). Furthermore, the emotional valence of expressions is likely to significantly impact the translator's reaction time; it may take longer to find a suitable translation for words that are contrary to the translator's beliefs than those consistent with their ideology (Rojo López & Ramos Caro, 2014).

Another emotional trigger for translators is personal and professional surrounding context (Rojo López, 2017). Feedback is one of the factors that may impact translators' affect states and translation process. It has been found that positive emotions induced by positive feedback may improve creativity whereas negative emotions triggered by negative feedback may enhance meaning accuracy among German professional translators and Spanish final-year translation students (Lehr, 2011, 2012, 2013; Rojo López & Ramos Caro, 2015, 2016).

The main limitation of the above research studies on emotional and affective aspects in interpreting and translation processes is their exploratory nature with small sample sizes. Thus, the results are yet to be conclusive and the degree of generalisability is limited. Nevertheless, the results point to potential stressors in translation process. For instance, emotional valence could cause work stress when the expressions in the source text are incongruent with the translator's beliefs, which prolongs the work process.

2.2.2.3 Cognitive ergonomic issues

From an ergonomic point of view, three dimensions, i.e., the cognitive, the physical, and the organisational, contribute to translation work stress. The increasing dependence on technology has a profound ergonomic influence on translators as translation is a "complex, bilingual, screen-intensive activity over prolonged periods" that requires concentration and stamina" (Kappus & Ehrensberger-Dow, 2020, p. 387). The multitasking nature of translation

can easily lead to cognitive overload and stress. The activities involved in translation, such as reading, checking for background information, drafting translation texts and revising, require intensive cognitive effort, including concentration, working memory, and bilingual lexical retrieval processes. Moreover, given the unlimited resources online, translators, especially novice ones, are likely to experience technological overload (Ehrensberger-Dow & Massey, 2014).

Besides cognitive challenges involved in translation per se, an unsatisfactory working environment and the automation of the translation profession can be another work stressor. It is common for translators to be affected or even disrupted by contextual factors such as verbal or non-verbal background noise, poor lighting and changes in temperature, and physical factors such as the inappropriate design of workstation equipment (e.g., desks, chairs, keyboards, monitors, and mice), all of which may influence their productivity and wellbeing (Ehrensberger-Dow & Massey, 2014). Specifically, the non-ergonomic design of the keyboard requires non-physiological movements such as distortions and overextension of the hands and fingers and imbalanced use between the right and left hands (Ehrensberger-Dow & Massey, 2014). Health complaints caused by technology on work, such as Computer Vision Syndrome, including symptoms of eyestrain, headaches, blurred vision, dry eyes, and neck and shoulder pain, have been reported by frequent computer users (Rosenfield, 2011).

In addition to the design of translators' working environment, an exploratory study of the usability of different translation tools found that the design of the interface of computer-assisted translation (CAT) tools also has implications for translators' ergonomics and cognitive load (Kappus & Ehrensberger-Dow, 2020). In the study, eight participants, who were MA translation students, were asked to translate two texts using two different CAT tools, Trados and Lilt. It has been found that the CAT tool with a more complex interface (i.e., Trados) is less ergonomic and lowers productivity and translation quality compared to

the one with a leaner interface (i.e, Lilt). Kappus and Ehrensberger-Dow (2020) suggested that limiting content and options available on the interface of CAT tools for those who are first learning to use such tools are likely to reduce ergonomic issues as individuals could focus more on the decision-making process without being distracted by various distractions. Thus, based on Kappus and Ehrensberger-Dow's (2020) study, CAT tools with too complex interface design could be a potential stressor as it might increase translators' cognitive load and reduce productivity.

In terms of organisational ergonomics, translators are increasingly isolated and even disempowered by software developers. This is due to the failure to explore the human and organisational aspects in the design and deployment of workflows of computer-assisted translation tools and project management tools (e.g., Ehrensberger-Dow, 2017; Ehrensberger-Dow, & O'Brien, 2015). Work processes in translation technologies are hardly designed from the perspective of the translator as the dominant user, which causes cognitive friction (i.e., "the resistance encountered by a human intellect when it engages with a complex system of rules that change as the problem changes") (Cooper, 2004, p. 19) between the translator and the technology (O'Brien, Ehrensberger-Dow, Hasler, & Connolly, 2017). Therefore, the lack of a user-friendly design of tools for translators further aggravates their work stress by increasing their cognitive load.

To investigate ergonomic issues in translation, Ehrensberger-Dow and Massey (2014) conducted a pilot online survey with a sample of 14 participants. Results showed the most stressful and disturbing factors included noise from inside (85%) and outside (78%) of the office, people moving around the workplace (78%), and emails, conversations or phone calls (71%). All of the participants reported their work negatively influenced their health conditions, five (35%) attributing their health complaints completely to work, which was

much higher than the overall proportion of European Union workers, 25% of whom perceived a major impact of work on health (Eurofound, 2012).

Although based on the survey results, Ehrensberger-Dow and Massey (2014) provided a better understanding of ergonomic work stressors for translators, this study has several limitations. First, statistical significance may not be reliable enough with such a small sample. Second, this study only focused on translators who worked in a formal work setting. The other major group of translators, freelancers, who mainly work from home, are not included. Hence, it is unknown whether the latter experience similar or different ergonomic issues to the former.

A research on organizational translation ergonomics surveyed 98 agency translators in Slovakia to investigate the correlations between happiness at work (HAW) and several components of organisational ergonomics of translation, including agency translators' support for workflow, opportunity to discuss translation problems, autonomy at work, time pressure, clarity of deadlines, feedback, and variety in deskbound routines (Bednárová-Gibová, 2021). It has been found that translators' HAW is significantly correlated with their working environment, the text type they translate, time pressure and the ability to maintain concentration (Bednárová-Gibová, 2021). The findings indicate the potential implication of specific components of organisational ergonomics of translation on translators' HAW.

However, there are several limitations of the study. First, due to social desirability of ethnographic self-report data (Hubscher-Davidson, 2017), Bednárová-Gibová (2021) noted that the respondents were likely to be happier than those did not participate in the study. Second, as the research only investigated correlations among the variables, we cannot deduce a cause-and-effect relationship between HAW and the components of organisational ergonomics of translation. Third, as the sample was agency translators, it is unknown whether

the findings also apply to freelance translators. Moreover, results from the Slovak sample may or may not generalise to other non-Slovak linguistic contexts.

In conclusion, despite limited evidence, based on academic studies and anecdotal experience, translators are facing a variety of stressors, ranging from challenges on task, such as the complex nature of the job, to issues around the profession, such as technology, working conditions, and communication. With the increasingly deepening relationship between translation and technology, in spite of the existing difficulties, it can be assumed that translators will face more challenges both physically and psychologically. Further, due to the fact that a portion of crisis translators will be untrained or semi-trained at best, it is unknown whether they differ from those who are professional translators physically and psychologically in their response to a potential stressor. In crisis translation, due to the high demands (e.g., time pressure, heavy workload), limited resources (e.g., a lack of specialised knowledge), and often rapidly evolving situations in their work settings, translators, including those who are untrained, semi-trained, and professional, are likely to be involved in hybrid working modes, performing both written translation and oral interpreting (e.g., sight translation), which will intensify the complexity of the work; thus, translators may face work stress coming from both modes. Therefore, it is clear that research studies are needed to systematically examine factors that may cause work stress for translators, especially those who work in the context of crises.

2.3 Research on Community Translation and Interpreting Focused on Crisis Settings and Crisis Communication

Having examined stress factors in translation and interpreting routine work, this section will focus on translation and interpreting in crisis settings. We will present some high-profile examples in global contexts and the local New Zealand context in a

chronological order, discussing the role of translation and interpreting in crisis response and identifying stress factors in crisis translation.

2.3.1 The 2010 Haiti Earthquake

Following the 2010 Haiti Earthquake, the biggest barrier to emergency response was language. Due to the severity of the disaster and the local political situation, including widespread corruption, Haiti was unable to carry out rescue operations and heavily depended on international aid (Rogl, 2017). Members of the disaster relief organisations sometimes had the misconception that Haitians were all bilingual. Whereas the fact was that approximately 90% of the population only speak Haitian Creole, and only a small number can speak French or both languages (Rogl, 2017).

The primary emergency response team, the US Military, did not understand the majority of the messages as they were written in Haitian Creole and French. Thus, a humanitarian crowdsourcing initiative called Mission 4636 was conducted to process text messages (SMS) sent by the crisis-affected community. The processing of SMS was divided into micro-tasks, including translation (from Creole and French to English), categorising, and mapping, all of which were done by volunteers who spoke Creole and French and were recruited worldwide via online crowdsourcing platforms (Munro, 2010). Among all the volunteers, the Haitian diaspora made up the most contribution (Munro, 2013).

Although Mission 4636 appeared to be a successful strategy for response, benefiting the crisis-affected community, their friends and families, and the humanitarian agencies, unfortunately, like any humanitarian aid, people who worked for it experienced profound psychological trauma (Munro, 2013). Research shows that remote aid workers have an equivalent or even a higher level of psychological impacts, e.g., post-traumatic stress disorder (PTSD), as those who work on-site (Chelala, 2010; Jenkins, 1997).

In Rogl's (2017) study on language-related disaster relief in Haiti, several issues pertaining to potential work stress are summarised as follows. In terms of the recruitment of interpreters, the demand for on-site Creole speakers was too high to only involve people who had previous experience in crisis settings, which resulted in those without any prior interpreting experience and training or medical qualifications being recruited (Rogl, 2017).

With regard to deployment areas, many of the interpreters needed on the disaster site were assigned to national Red Cross teams from different countries or the military. Apart from medical interpreting, interpreters were also hired during the reconstruction period. Others worked for the media or with journalists in the field (Rogl, 2017). Additionally, the role of the interpreter went beyond merely providing communication services; instead, they were likely to be involved in the overall coordination efforts (Bulut & Kurultay, 2001). Translators were asked to carry out a wide range of related activities, including importing data of missing persons into Google Person Finder and subtitling for webcasts and documentaries reporting on the earthquake (Rogl, 2017).

The volunteers were a combination of both professional and non-professional translators. Volunteer translators with other qualifications pertaining to medical, psychological or military training, technical or engineering skills or any previous humanitarian experience were additionally helpful in the aid effort. Also, other personal details, such as a good understanding of Haiti or even the person's vaccination history, were also beneficial. However, the willingness to help from a large number of volunteers did not imply that everyone involved was capable of and well-prepared for the tasks. The wide range of challenges faced by volunteers who intended to provide active assistance prevented some of them from offering on-site support, resulting in a number of them deciding to work remotely (Rogl, 2017).

Humanitarian aid professionals and translation agencies repeatedly warned volunteers that working with injured victims in the aftermath of the earthquake could be physically, emotionally, and mentally challenging and that they should be well prepared and avoid being too naïve about the situation (Rogl, 2017). It was also stressed that only those who were emotionally stable were suitable for the task (Rogl, 2017). This caveat is also backed by a study on the Bam earthquake in Iran, which found that compared to professionals, such as Red Cross staff and firefighters, disaster relief volunteers without any previous medical or psychological emergency training have a significantly higher possibility of developing post-traumatic stress symptoms (Hagh-Shenas, Goodarzi, Dehbozorgi, & Farashbandi, 2005).

While technologies, such as online platforms, open up a large number of possibilities for people to actively engage in voluntary language-related relief aid, the psychological impact, especially the one on remote volunteers, as shown in Munro's (2013) study, is a hidden issue in such a context. Rogl (2017) only mentioned potential psychological difficulties faced by interpreters on the ground, neither touching on any solutions nor considerations for remote interpreters and translators, though it is argued that more training is needed to better prepare language-related workers for emergencies.

2.3.2 The 2011 Great East Japan Earthquake

Cadwell (2015) interviewed 28 foreign residents with 12 different nationalities who lived in East Japan during the occurrence of the earthquake, investigating several key topics, including their experience of the earthquake, communicative and linguistic needs, and sense of community. It was found that foreign residents were in dire need of translation and interpreting at all stages of the disaster, yet there was a lack of such linguistic mediation, a lack of consistency in the production, and a lack of timely delivery. In addition, foreign residents also had significant cultural barriers to information gathering and communication,

such as misunderstandings of the use of infographics, warning alarm sounds, and information presentation.

It was found that foreign residents primarily relied on their bilingual acquaintances, friends, colleagues, and family for communication and information gathering (Cadwell, 2015). Thus, the nature of the language mediation was voluntary and ad hoc. Regarding psychological stress, one of the major stressors is the same as what has been found in the case study of the 2011 Christchurch earthquakes (Wylie, 2012); that is, while working as language mediators, the volunteers themselves are also directly affected by the disaster (Cadwell, 2014). A volunteer translator who worked at a local government office of Japan pointed out it is stressful to hear people asking questions closely related to himself/herself, especially when the translator suspects the authenticity of that information (Cadwell, 2014). Another volunteer reported that it is challenging to translate the updates for a foreign acquaintance via email in the first few hours of the earthquake even though he is proficient in both English and Japanese as the entire situation is stressful and disturbing (Cadwell, 2014).

Although Cadwell (2014) only represents a few examples of volunteer translator-related stress, it is asserted that the stressors could be much more diverse and complicated in reality, depending on the type and severity of the crisis. Yet, there is a dearth of research on work stress in volunteering translation, which is the gap that the present study is trying to fill in.

2.3.3 The COVID-19 Pandemic

A range of global crises has led to the rising demand for intercultural crisis communication in which crisis translation plays an indispensable role. Coronavirus disease 2019 (COVID-19), an infectious disease that causes respiratory infections, first broke out in Wuhan, China, in December 2019 and then swiftly developed into a pandemic sweeping the world (WHO, 2020).

The COVID-19 Strategic Preparedness and Response Plan and associated Operational Planning Guidelines identify risk communication and community engagement as one of the eight priorities (United Nations Office for the Coordination of Humanitarian Affairs [OCHA], 2020). The unprecedented outbreak of COVID-19 has brought multilingual crisis communication to the forefront as it is critical that every individual has access to timely and accurate information in their language as one of the essential prevention measures (Lee & Wang, 2022; Piller, 2020; Piller et al., 2020). On the one hand, measures to prevent the spread of COVID-19, such as lockdowns, quarantine, and social distancing, resulted in the proliferation of the use of social media to ease the feelings of estrangement (Lee & Wang, 2022). On the other hand, the severity and global impact of the pandemic have intensified the perennial, often ignored need for translation and interpreting to ensure inclusiveness and social equality (e.g., Piekkari, Tietze, Angouri, Meyer, & Vaara, 2021; Wang, 2019; Zheng, 2020). Globally, a number of people and organisations quickly came together to offer linguistic mediation as part of emergency response services to multicultural communities on a voluntary basis (e.g., Bali & Yussuf, 2021; Translators without Borders [TWB], 2020; Zhang & Wu, 2020).

Having identified the language needs of foreign nationals in Wuhan in the crisis response phase, the Office of Foreigner Affairs (OFA) of the Municipal Government of Wuhan promptly set up a crisis translation team (CTT) in January 2020. The CTT consisted of 32 translators and interpreters, among which five were professional translators at the OFA, and the others were volunteers with varying levels of experience ranging from final-year master's students in translation and interpreting to professionals working in the language industry. The working languages included Chinese, English, Japanese, Korean, Spanish, French, Russian and Italian (Wang, 2019).

In consultation with the INTERACT members who highlighted the importance of volunteer translator training, in light of limited time and resources, the manager of the CTT provided all the volunteer translators with a 120-minute online training session. The training covered four aspects: mandatory self-protection (i.e., the use of personal protective equipment) at work, translators' role as a cultural filter, translating health-related content, and the use of machine translation tools.

During the training, Wang (2019) emphasises that translating/interpreting in COVID-19 should aim to achieve trust-building and promote mutual respect and a positive response and that translators/interpreters should respond with compassion and empathy. Wang (2019) believes that it is essential to provide training that specifically targets the crisis for the translators throughout all phases. Moreover, their performance needs to be assessed regularly. It is also suggested that despite the palpable difference between crisis and routine translation, it would be beneficial to incorporate crisis translator training into a professional translator training programme.

Although Wang (2019) does not explicitly focus on the psychological aspects involved in translation/interpreting in this emergency, their entire action plan indicates that translators/interpreters should develop certain psychological skills, and a strategy has been developed to prevent work stress (i.e., cooperating with language service providers if translators experienced work overload or the task was beyond their capabilities).

Thus, Wang's (2019) first-hand experience as a crisis translation manager again implies potential work stress in crisis translation and the gap between what the CTT members' needs and what the organisation was able to provide regarding psychological competence as part of crisis translator training to facilitate workflow and ensure the translation quality.

To ease the shortage of linguistic mediators and meet the pressing and huge demand for language services during the pandemic, globally, crisis translators primarily consisted of university students who acted as volunteer translators and interpreters (e.g., Bierman, 2021; Lerner, 2020; Zheng, 2020). Zheng's (2020) study on volunteer translators' challenges and strategies, like many previous research studies on crisis translation (e.g., Piller et al., 2020; Wang, 2020; Zhang & Wu, 2020), still only focused on the perspective of translation and languages per se. In response to the multilingual communication needs of foreign residents in Shanghai amid the pandemic, a group of foreign language major university students and teachers volunteered as crisis translators upon requests from the local hospitals and communities. Challenges and coping strategies have been identified through semi-structured interviews of nine participants, including translation team leaders, members, and a local community health worker (Zheng, 2020). The main challenges identified include time pressure, limited proficiency in the target language, and a lack of relevant professional knowledge. The primary solution to those challenges is teamwork and seeking help from acquaintances who are native speakers of the target languages (Zheng, 2020).

In Zheng's (2020) study, it is unclear to what extent the volunteer translators, especially the less experienced students, have been affected by the volunteer work and the pandemic physically and psychologically. Although Zheng (2020) claims that university students were a readily available resource for offering language services during COVID-19, no attention has been paid to the psychological impact of engaging in the stressful and demanding pandemic-related linguistic mediation.

Nevertheless, given the critical role played by university students in translation volunteering during the COVID-19 pandemic in China, the aspect of psychological health should never be overlooked as research studies have found that university students are a vulnerable population in the face of the COVID-19 pandemic (e.g., Grubic, Badovinac, &

Johri, 2020; Savage et al., 2020; Wathelet et al., 2020; Zhai & Du, 2020). It is alarming that a large proportion of college students has suffered from high levels of stress, anxiety, or depression during the pandemic (Essadek & Rabeyron, 2020; Kaparounaki et al., 2020), but they have not been provided with adequate resources to manage coronavirus-related stress (Wang et al., 2020). There is a risk that the acute impact may develop into post-traumatic stress symptoms though the long-term consequences are yet to be known (Essadek & Rabeyron, 2020). It is recommended that higher education institutions and health professionals should provide students with psychological support and specific interventions to address mental health needs and issues posed by the pandemic (Copeland et al., 2021; Essadek & Rabeyron, 2020; Grubic, Badovinac, & Johri, 2020; Kaparounaki et al., 2020; Zhai & Du, 2020).

A survey investigated students' knowledge, attitudes, and mental health from a university in China and compared the results with the population norm. Results show that university students' mental health was worse than the norm. Among the 472 valid responses, over half of the respondents experienced a great deal of fear of the pandemic. They had significantly higher scores of somatisation, obsessive-compulsive disorder, interpersonal sensitivity, anxiety, phobic anxiety, paranoid ideation, and general severity index (Jiang, 2020).

Given the evidence of the psychological, social and health behavioural impacts of COVID-19 on university students, we believe that crisis translation that frequently involved student volunteers during the pandemic should not have overlooked the impacts of the crisis and volunteering on students' physical and psychological health. Admittedly, student volunteers have made an important contribution to crisis translation during COVID-19. It is also evident that they are not emotionally resilient enough in the face of the pandemic (e.g., Grubic et al., 2020; Savage et al., 2020; Wathelet et al., 2020). Thus, there is a need for

providing psychological support for crisis translators, especially university students, before, during, and after the crisis to ensure translation quality and crisis translators' wellbeing at the same time.

2.3.4 The New Zealand Context

New Zealand frequently experiences natural hazards and emergencies and is ranked as high-risk for a range of natural disasters such as flooding, earthquakes, volcanic eruptions, and tsunamis (ThinkHazard, 2020). With 25% of the population being overseas-born citizens and permanent residents, its rapidly changing demographics, including culturally and linguistically diverse (CALD) communities, further increase the vulnerability to disasters and the complexity of disaster response (O'Brien, Federici, Cadwell, Marlowe, & Gerber, 2018).

In the National Civil Defence Emergency Management (CDEM) Plan, the authorities take the CALD communities into account in terms of broadcasting emergency information, pointing out one of the principles is to "use a wide range of channels and media to reach as many people as possible, including culturally and linguistically diverse communities and people with disabilities" (New Zealand Government, 2015, p. 228). Yet, it does not touch on any concrete approach to reaching CALD communities, merely mentioning that steps of ensuring accessibility of information "may involve the use of translators and interpreters" (New Zealand Government, 2015, p. 231). Besides this, the keyword "translation", which is one of the enablers of information accessibility, is completely absent from the report. Moreover, research has found that there is a lack of professionals supporting multilingual crisis communication in New Zealand (Federici, O'Hagan, Cadwell, Marlowe, & O'Brien, 2021).

Despite the lack of attention to translation in the National CDEM Plan, in the lessons learnt from past disasters, the awareness of the importance of translation is evolving. The following section illustrates (1) challenges in crisis communication in the 2010/2011

Canterbury Earthquakes, (2) a citizen translator training program carried on in Wellington, which aimed to enhance CALD communities' earthquake preparedness, and (3) a Crisis Translation Training delivered at UoA. Key findings are summarised as follows.

2.3.4.1 Challenges in crisis communication in the 2010/2011 Canterbury Earthquake Sequence

On 4 September 2010, a magnitude 7.2 earthquake struck the Canterbury Region of New Zealand. The Canterbury Earthquake Sequence (CES) started with the Darfield earthquake and was followed by continual large and small aftershocks. Then, the Christchurch earthquake occurred on 22 February 2011, five months after the mainshock. Christchurch suffered from tremendous changes and catastrophic damage (Potter, Becker, Johnston, & Rossiter, 2015). Given the frequent aftershocks, communities went through the cycles of impact, reaction, and recovery repeatedly. This caused distinct challenges of providing aftershock information for agencies and the public over such a long period of sequence (Becker et al., 2019). Moreover, natural disasters have a variety of impacts on people, including short- and long-term stressors that affect people's health and wellbeing (Bonanno, Brewin, Kaniasty, & Greca, 2010).

Extensive literature has investigated the psychological issues during the CES (e.g., Dorahy et al., 2015; Gawith, 2011; Morgan et al., 2015; Rowney, Farvid, & Sibley, 2014). Research studies indicate that the CES was associated with widespread adverse impacts on psychological health (Beaglehole, Mulder, Boden, & Bell, 2019), such as post-traumatic stress disorder (PTSD), fear, stress and anxiety, depression, and sleep disturbance (Rowney et al., 2014). Specifically, the Canterbury Wellbeing Survey, consisting of three repeated six-monthly surveys (from September 2012 to September 2013) since the initial earthquake, indicated that one of the major stressors for the Greater Christchurch population was "distress

and anxiety relating to the aftershocks" that negatively impacted the respondents' daily life to a moderate to significant extent (Morgan et al., 2015, p. 101).

The Christchurch earthquake resulted in 185 deaths (Potter et al., 2015), many of whom were from CALD communities (Wylie, 2012). In light of the major damage caused by the earthquakes, the government has raised its awareness of including all communities as part of disaster management approaches (Zorn, Comrie, & Fountaine, 2016). To learn from the disaster and to develop guidelines for effectively engaging with CALD communities, a study was conducted to identify key challenges and issues of crisis response and recovery (Wylie, 2012). The issues that are related to crisis communication, translation and interpreting are summarised as follows.

Various challenges impacted the flow of key information from government agencies to CALD communities following the major Canterbury earthquakes. These included psychological difficulties, lack of coordination, information overload, loss of key communication mechanisms, such as power and telecommunication outages, inadequate understanding about Civil Defence responses, insufficient translation and messages in plain English, inadequate understanding of the diversity of the local CALD communities, and insufficient use of interpreters, and a lack of bilingual staff (Wylie, 2012).

In terms of psychological difficulties, government and agency workers and CALD community leaders all experienced the earthquakes personally. They had to overcome their own psychological challenges on the one hand, and they also had to execute their job duties on the other hand, which influenced their capability to varying degrees (Wylie, 2012).

The second stressor was information overload. Translators were overwhelmed by a large amount of information due to the lack of management of key information sent from official agencies. It was challenging to distinguish correct information and to identify the most crucial messages for communities. Additionally, many 0800 numbers were redundant as

several sources delivered the same information to an individual, which resulted in information overload (Wylie, 2012).

Despite the crucial role bilingual staff played in relieving public fears and raising awareness and knowledge about the disaster and the risk, the labour force in key government agencies was not diverse enough. There was a shortage of bilingual staff, which significantly increased workloads for the existing staff (Wylie, 2012).

With the specific challenges and difficulties identified by Wylie (2012), the dire need for incorporating crisis translation into crisis communication has emerged more visibly. Yet again, as noted earlier, although the importance of crisis translation is shown in the various cases, there is a lack of in-depth understanding of the way to effectively manage crisis translation and to address its difficulties, including one of the often neglected yet major issues, i.e., psychological challenges, which have negative impacts on translators' wellbeing and performance (e.g., Munro, 2013; Shackleton, 2018).

2.3.4.2 Citizen translator training

The 2010/2011 Canterbury Earthquakes in New Zealand presented challenges of crisis communication between the local authorities and the CALD communities. To learn from the disaster and to better develop resilience for the CALD communities, the Wellington Region Emergency Management Office (WREMO) developed an earthquake planning guide in English and commissioned a translation project of the guide that began in August 2017. The translation project involved some 45 citizen translators working with 17 languages frequently used by CALD communities in the Wellington Region. Citizen translators are individuals, or "a community of individuals who may be trained or untrained linguists" conducting translation practice (Federici & Cadwell, 2018, p. 22). The project was coordinated by New Zealand Red Cross (NZRC) with the assistance of members of INTERACT. As NZRC coordinators did not have expertise in translation, in the early phase

of collaboration with INTERACT, NZRC asked for advice on general translation issues and specific issues of engaging with the CALD communities for the translation project. In response to NZRC's needs, the INTERACT team then designed a 90-minute introductory citizen translation course. It aimed to equip bilinguals from the relevant communities who volunteered to translate the earthquake preparedness guide with necessary translation skills (Federici & Cadwell, 2018).

In designing the training program, the INTERACT team first resolved several challenges, including individuals with differing levels of English competence and texts with culture-specific difficulties. In the training session, participants were required to take not only the linguistic aspect but also cultural, emotional, and resource-constrained aspects into account (Federici & Cadwell, 2018).

Though appearing as a successful program, there are still some limitations. First, the collaborative tripartite work mode, i.e., a volunteer translator, a volunteer reviewer, a volunteer community liaison, was likely to create natural self-criticism (Federici & Cadwell, 2018). Thus, it is reasonable to assume that interpersonal tension may arise among the three individuals if there are different opinions on translation work. Second, cultural and ethical issues are inevitably involved in crisis translation with the diversity of trainees.

In this citizen translation project, several cultural and ethical challenges were identified. Specific challenges were found in different groups. For example, in Vietnamese, the younger and older generations differed significantly in their views on written and spoken languages, resulting in disagreements with the choice of the version since translating in both ways was impossible due to limited resources. The solution was to choose the one that was beneficial to most of the Vietnamese users who did not speak English in Wellington. In the Somali community, commissioning the right people to do the translation was particularly challenging as it was culturally sensitive. The suitable volunteers should not only be capable

of doing the translation but also be accepted by the community. Some groups were faced with the dilemma of faithful translation or adaption based on their personal experience and backgrounds. For example, some volunteers disagreed with the advice in the source text (i.e., the Earthquake Preparedness Guide) of "Drop, Cover, Hold" because they thought running outside was the best practice that helped people survive in the context of building collapse (Shackleton, 2018).

The training program designed and delivered by the INTERACT team mainly addressed citizen translators' linguistic and translation skills; yet Federici and Cadwell's (2018) study did not discuss any challenges nor solutions to work stress. However, Shackleton (2018) mentioned tension existed in certain ethnic groups, ranging from work stress arising from the translation task itself to interpersonal issues among the team members.

2.3.4.3 Crisis translation training at UoA

Federici et al (2019) developed a non-language specific Crisis Translation Training pitched at master-level translation and interpreting students. It aimed to help students develop a broader skillset in response to multilingual needs in times of crises. The training was delivered in two sites, one of which was UoA, in 2017, as part of the existing semester-long Community Interpreting and Contextual Studies course. It aims to (1) "address the role of community translators in emergency settings relating to disaster management" and (2) "raise students' awareness of the essential skills and knowledge enabling them to operate effectively and ethically under constrained circumstances typical of crisis communication" (Federici et al., 2019, p. 257). The learning outcomes were assessed through the WREMO project (see Section 2.3.4.2; Shackleton, 2018) and students' weekly reflective diaries.

The key goals were mostly met based on students' in-class engagement, their reflective diaries, and course evaluations (Federici et al., 2019). However, an unforeseeable incident happened when a student became emotional while recalling her experience of a

major earthquake during class (Federici et al., 2019). Although the student recovered without extra support, Federici et al (2019) made revision of the course by providing links to mental and well-being support in the module materials. This incident indicated the fact that the discussion of one's experience of a crisis can be triggering, not to mention the potential psychological issue caused by engaging in crisis translation when the translator is exposed to an authentic crisis setting and has to do crisis-related language mediation. This, in turn, highlights the necessity of providing crisis translators with psychological support in reference to engaging in crisis translation before, during, and after a crisis.

In conclusion, based on the above case studies, it is justified to argue that despite the lingua franca status of English, in the global context, wherever a crisis happens, either in an English-speaking region or not, translation is needed across all the phases of the crisis. In the preparedness stage, documents prepared by the authorities need to be translated into other languages used by CALD communities to enhance the awareness and resilience across diverse communities. In the response stage, messages sent by CALD communities need to be translated into English to facilitate crisis response by international responders (Munro, 2013). In the recovery stage, translation is also needed to facilitate reconstruction, such as the restoration of normal community activities and normal routines (Lindell, 2013). Admittedly, preparing community translators for linguistic and translation skills is essential, yet psychological issues, such as work stress, were left unaddressed (Federici & Cadwell, 2018; Federici et al., 2019; Shackleton, 2018). Clearly, there is a gap in both academic research and practical application, and this is where the present study fits in.

2.4 Conclusion

In conclusion, the review of the literature on translation, interpreting, and work stress in crisis settings has several implications for the present thesis. Recent years have witnessed the increasing importance of the linguistic mediation role played in crisis settings (e.g., Bulut

& Kurultay, 2001; Cadwell, 2021; Federici & Cadwell, 2018; Munro, 2010; Munro, 2013; Rogl, 2017; Shackleton, 2018). The literature on TS provides some evidence of work stress in the profession, for instance, some commonplace and predictable stressors such as time pressure, a heavy workload, and cognitive demands (e.g., Bednárová-Gibová, 2021; Munro, 2013; Shackleton, 2018) and unforeseen ones due to the nature of the crises (e.g., the COVID-19 pandemic) (e.g., Wang, 2019; Zheng, 2020). Given the critical role of linguistic mediation in crises, research studies on crisis communication and crisis translation support the value of incorporating multilingual communication into crisis response to keep communities safe and inclusive. Yet, little attention has been paid to potential work stressors and their impacts on translators' physical and psychological wellbeing in crises which contrasts strikingly with the extensive research and comprehensive support for social and field workers responding to emergencies, disasters and crises (e.g., Alston, Hazeleger, & Hargreaves, 2019; Kranke et al., 2022; Naturale, 2007). Nevertheless, some work has generally touched upon interpreters' work stress and crisis working environments (e.g., AIIC, 2002, 2021; Olofsson, 2011; Roziner & Shlesinger, 2010; Wylie, 2012). Although the psychological aspect is relatively less visible, its importance has been shown above. However, existing research on crisis translator/interpreter training mainly focuses on the language and translation/interpreting perspective (e.g., Federici & Cadwell, 2018; Moser-Mercer, Kherbiche, & Class, 2014; O'Brien, 2016; Shackleton, 2018). The next chapter will discuss the theoretical framework, the job demand-resources (JD-R) model, that the present study used and present the research design.

Chapter 3 – Methodology: Theoretical Framework and Research Design

3.1 The Job Demands-Resources (JD-R) Model

The present study uses the Job Demands-Resources (JD-R) Model as an analytical framework. The purpose of the application of the JD-R model is to further categorise translation and interpreting related work stressors in crisis translation and crisis communication so as to better understand their effects on crisis translators' wellbeing. A brief introduction to the JD-R model is first presented followed by its application to crisis translation.

3.1.1 Introduction to the JD-R Model

Since the advent of the JD-R model, it has been widely used by researchers and has been acknowledged as one of the leading work stress models (Schaufeli & Taris, 2014). The reason for its popularity is that it is a well-grounded model, further developed based on the Job Demands-Control (JD-C) model (Karasek, 1979) and the Effort Reward Imbalance (ERI) model (Siegrist, 1996). The JD-C model assumes that individuals working in a high-strain job (high demands and low control) experience the lowest well-being (Karasek, 1979). The ERI model posits that adverse effects on employee health and well-being are caused by a mismatch between high efforts spent and low rewards received at work (Siegrist, 1996).

However, unlike the two earlier models, the scope of JD-R model is much broader, extending specific job demands and resources into general ones, which assume that employee health and well-being may be affected by any demand and any resource (Schaufeli & Taris, 2014). Thus, its flexibility enables the JD-R model to be applied to a wide range of occupational settings.

The JD-R model defines job demands as "those physical, social, or organisational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs" (Demerouti, Bakker, Nachreiner, &

Schaufeli, 2001, p. 501), e.g., cognitive demands, computer problems, and work overload (Schaufeli & Taris, 2014). Demerouti et al. (2001) define job resources as those physical, psychological, social, or organisational aspects of the job that may do any of the following: (a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; (c) stimulate personal growth and development. (p. 501). Examples of job resources include financial rewards, performance feedback, and supervisory coaching (Schaufeli & Taris, 2014). Personal resources refer to "the beliefs people hold regarding how much control they have over their environment" (Bakker & Demerouti, 2017, p. 275) and play a similar role as job resources. Examples of personal resources include optimism, self-efficacy, and self-esteem (Bakker & Demerouti, 2017).

Extensive research studies have supported the existence of the dual process, i.e., the health impairment process and the motivational process, in the JD-R model (Figure 3.1) (e.g., Bakker & Demerouti, 2007; Bakker, Demerouti, & Schaufeli, 2003; Hakanen, Schaufeli, & Ahola, 2008; Schaufeli & Bakker, 2004; Schaufeli & Taris, 2014). In the health impairment process, job demands deplete employees' physical and psychological resources, resulting in exhaustion and health problems (e.g., Demerouti, Bakker, De Jonge, Janssen, & Schaufeli, 2001; Demerouti et al., 2001; Leiter, 1993; Schaufeli & Taris, 2014), while in the motivational process, job resources inspire employees to reach their full potential, thus leading to high employee engagement, high dedication, and outstanding performance (Bakker & Demerouti, 2007; Schaufeli & Taris, 2014).
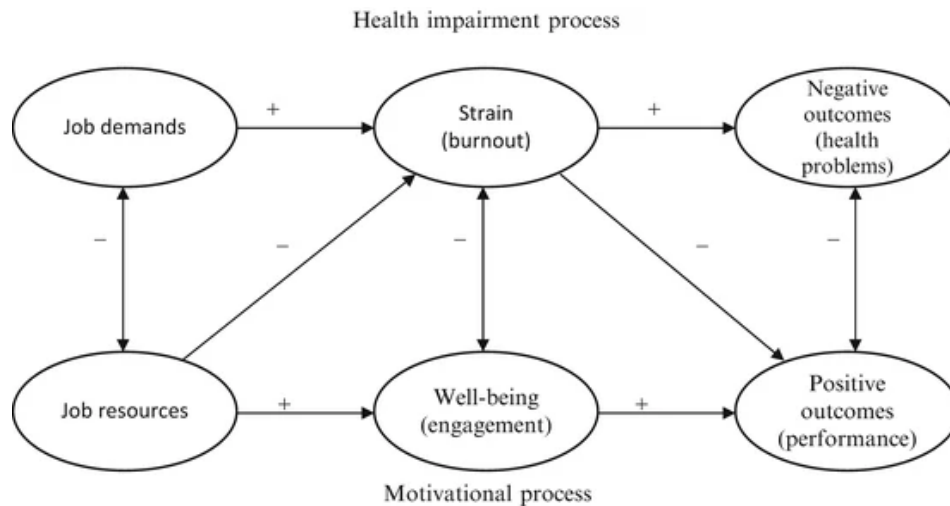
Figure 3.1 The health impairment process and the motivational process in the JD-R Model, Schaufeli & Taris (2014)

In addition to the main impacts of job demands and resources on employee's well-being and commitment, research studies have also shown that job resources play a role in buffering the effect of job demands on strain reactions, including burnout (Bakker, Demerouti, & Euwema, 2005; Bakker, Demerouti, & Schaufeli, 2003). Specifically, the interaction between low job resources and high demands predicts the highest level of burnout, with symptoms including exhaustion and cynicism (Bakker et al., 2005). In contrast, high job resources, such as autonomy, social support from colleagues, and a high quality of the relationship with the supervisor, buffer the impact of job stressors, including work overload and emotional demands, on job stress (Bakker et al., 2005). Schaufeli and Taris (2014) outlined an overview of a range of job demands, job and personal resources, and outcomes across various occupations. Table 3.1 demonstrates an abridged version of Schaufeli and Taris' (2014) work.

In conclusion, the JD-R model is a comprehensive and reliable theoretical framework which can be applied to a variety of settings and in the present study, it is applied to crisis translation.

Table 3.1 An overview of job demands, job and personal resources, and outcomes (Schaufeli & Taris, 2014, p. 64-65)

Job Demands	Job resources
• Centralization	• Advancement
• Cognitive demands	• Appreciation
• Complexity	• Autonomy
• Computer problems	• Craftsmanship
• Demanding contacts with patients	• Financial rewards
• Downsizing	• Goal clarity
• Emotional demands	• Information
• Emotional dissonance	• Innovative climate
• Interpersonal conflict	• Job challenge
• Job insecurity • Knowledge	• Leadership
• Negative spill over from family to work	• Opportunities for professional development
• Harassment by patients	• Participation in decision making
• Performance demands	• Performance feedback
• Physical demands	• Positive spill over from family to work
• Problems planning	• Professional pride
	• Procedural fairness
Outcomes (negative)	• Positive patient contacts
• Absenteeism (self-report and company registered)	• Quality of the relationship with the supervisor
• Accidents and injuries	• Safety climate
• Adverse events	
• Depression	Personal resources
• Determination to continue	• Emotional and mental competencies
• Unsafe behaviours	• Extraversion
• Negative work-home interference	• Hope
• Physical ill health	• Intrinsic motivation
• Psychosomatic health complaints	• Low neuroticism
• Psychological strain (General Health Questionnaire, GHQ)	• Need satisfaction (autonomy, belongingness, competence)
• Turnover intention	• Optimism
	• Organization-based self-esteem
Outcomes (positive)	• Regulatory focus (prevention and promotion focus
• Extra-role performance (self- or other-rated)	• Resilience
• Innovativeness	• Self-efficacy
• In-role performance (self- or other-rated)	• Value orientation (intrinsic and extrinsic values)
• Life satisfaction	
• Organizational commitment	
• Perceived health	
• Positive work-home interference	
• Service quality	
• Team sales performance	
• Workability	
• Happiness	

3.1.2 Job Demands and Resources in Crisis Translation

Based on the previous research on translation and interpreting, crisis communication, and community translation, and the review of the JD-R model, the next section categorises factors related to crisis translation into job demands and job and personal resources respectively, which will shed light on the methodology developed in the present study.

In terms of job demands, the vagaries of a crisis include unpredictability and suddenness (Al-Dahash, Thayaparan, & Kulatunga, 2016) and pose high job demands to translators who work in such settings. For example, in the 2011 Canterbury earthquakes in New Zealand, Christchurch suffered from power outages and loss of telecommunication (Wylie, 2012). Thus, it is likely that translators may encounter computer problems and have no access to the Internet, which is a major hindrance to the task since translators nowadays are highly dependent on technologies such as MT and CAT (Doherty, 2016). This absence of necessary tools, in turn, may cause ripple effects such as increasing the complexity of the task, heavier cognitive load, time pressure, and higher performance demands.

Psychologically, extensive research has showed that those who work for humanitarian aid experience profound emotional and psychological trauma such as PTSD (e.g., Cardozo et al., 2012; Ehrenreich & Elliot, 2004; Eriksson, Kemp, Gorsuch, Hoke, & Foy, 2001; Kunovski et al., 2017; Shah, Garland, & Katz, 2007). Working on-site or remotely, translators may still experience emotional distress (Chelala, 2010; Jenkins, 1997; Munro, 2013) when exposed to such a traumatic event where translators themselves may be survivors, yet meanwhile they still need to maintain high standards of work (Wylie, 2012). The job demands above make it difficult enough to perform the translation in a crisis scenario. Deploying volunteer translators to work in a crisis adds several layers of complexity, the most obvious being lack of humanitarian experience, which make them more vulnerable to psychological problems and disorders (Rogl, 2017).

Under various constraints of crisis communication, research studies have shown that translators experience role ambiguity and role conflict (e.g., Bulut & Kurultay, 2001; Munro, 2010; Munro, 2013; Rogl, 2017). Compared with translators in the daily routine work context, those who work in a crisis scenario may be required to carry out tasks beyond translation. In the 2010 Haiti Earthquake, for example, the tasks included translation,

categorising, and mapping, all of which were conducted by volunteers who spoke Creole and French (Munro, 2010). Moreover, the roles of volunteer interpreters extended from word for word interpreting to assisting with informed consent for surgery, family reunification, processes, explanation of diagnosis and treatment, comfort to patients and families in various stages of grieving and death, and helping healthcare professionals to understand the cultural context and sensitivities unique to Haiti (Powell & Pagliara-Miller, 2012). As noted before, in the context of a crisis, due to limited resources and time pressure, translators are likely to be involved in both written translation and oral interpreting, thus experiencing stressors from both working modes, which intensifies their role ambiguity and role conflict.

In addition, in the JD-R Model, remuneration, especially pay for performance (PFP), which is a subtheme of remuneration, is identified as a factor impacting job demands (Gauche, de Beer, & Brink, 2017). Specifically, changes made in the remuneration structure and uncertainty about the amount of remuneration contribute to stress-related disorders (Nieuwenhuijsen, Bruinvels, & Frings-Dresen, 2010). As most of the humanitarian organisations are non-governmental and non-profit, it is likely that bilingual humanitarian workers and volunteer translators and interpreters receive none or limited remuneration when working as a language mediator for crisis communication (Zwischenberger, 2022). Thus, a lack of remuneration can be a job demand that leads to work stress for crisis translators.

Hence, in the health impairment process, the above potential job demands may exhaust crisis translators' physical and psychological resources, leading to burnout and health problems such as absenteeism, accidents and injuries, depression, and psychological strain (Schaufeli & Bakker, 2004). In the motivational process, however, job resources can reduce the negative impact of job stressors (Schaufeli & Bakker, 2004). To better understand how to improve translators' wellbeing and performance in a crisis scenario, the potential job resources for crisis translators are analysed as follows.

Job resources can either be intrinsically motivational because they foster personal growth and development or extrinsically motivational because they play an instrumental role in achieving goals at work (Schaufeli & Bakker, 2004). For example, participation in decision-making and social support from colleagues and the supervisor meet the need for autonomy and the need to belong respectively (Schaufeli & Bakker, 2004). Performance feedback develops personal learning, thus, improving job competencies (Schaufeli & Bakker, 2004). As in the case of the citizen translator training programme in Wellington, the tripartite system (i.e., a volunteer translator, a volunteer reviewer, a volunteer community liaison) provides an opportunity for volunteers to participate in decision making, to support each other, and to give feedback (Federici & Cadwell, 2018), which facilitates intrinsic motivation, thus, enhancing their performance and wellbeing.

From an individual perspective, research shows that personal resources play a significant role in the JD-R model, buffering the negative effect of high job demands (e.g., Airila et al., 2014; Schaufeli & Taris, 2014; Tremblay & Messervey, 2011; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). It is found that employees who have more personal resources such as self-efficacy, organisational-based self-esteem, and optimism are more confident about their capabilities, prouder of their work, and more optimistic about their future, and hence engage more in work (Xanthopoulou et al., 2007). Consequently, in terms of translators' performance and wellbeing, in a crisis scenario, personal resources are not only crucial to cope with job demands, but also necessary in their own right as job resources reduce job demands, help to achieve work goals, and stimulate individual growth and development (Hobfoll, 2002).

Since an emergency setting is often one of high job demands but low job resources, it is argued that in this context, enhancing personal resources is an efficient and more feasible approach to mitigating the effect of job demands on translators' wellbeing and performance

as translation team in a crisis is often ad hoc, which makes it difficult to increase job

resources from an organisational perspective. Hence, it is recommended that besides

linguistic and translation training, to ensure high-quality work performance and translators'

wellbeing, specific guidelines that include psychological aspects of crisis translation work

stress should be developed and delivered as part of a comprehensive training programme.

The next section will first present the research design which included the initial and

the main studies and explains the sub-questions/hypotheses developed in each study linking

to the overarching question as stated in Chapter 1, hence locating the initial and the main

studies in the whole scheme.

3.2 Research Design

The thesis aims to answer the overarching question: **what factors contribute to**

work-related stress among COVID-19 crisis translators with what impact? To

operationalise the main questions, subsidiary research questions were developed from three

perspectives, job demands, resources, and the associated outcomes based on the JD-R model.

A research design map is presented to illustrate how each element interlocks to answer the

overarching question (Figure 3.2).
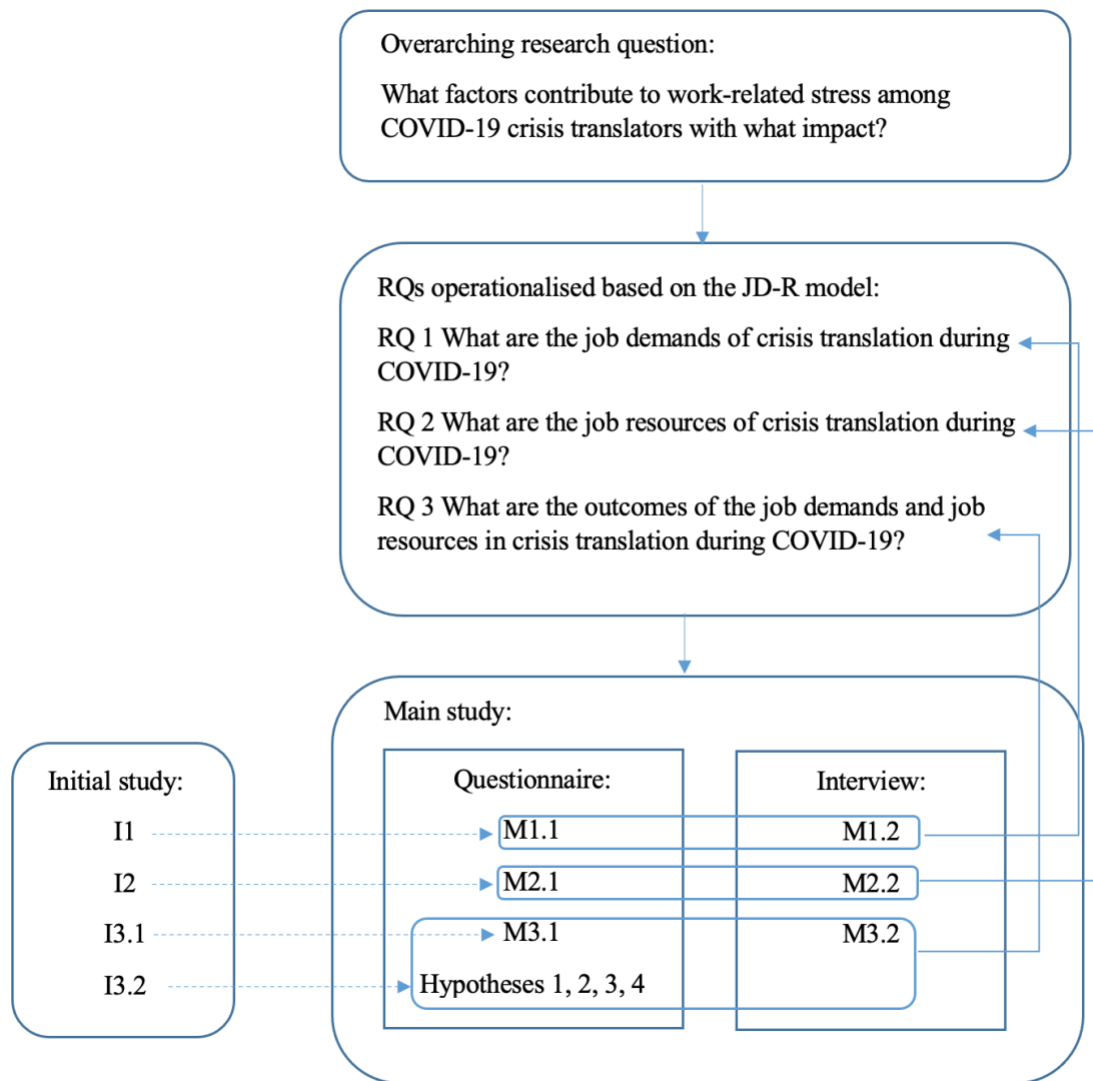
Figure 3. 2 Research design map

This figure demonstrates the sub-questions/hypotheses in the initial and main studies linked to the overarching question.

To explore job demands, resources, and the outcomes in crisis translation, the first step was to investigate the stressors present in translation routine work. According to the JD-R model (Bakker & Demerouti, 2007), the interaction between job demands and resources results in occupational stress. Given the JD-R model being the core framework for the investigation and analysis of work stress in crisis translation in this thesis, following the JD-R model's structure, the research questions (RQ) were proposed from three perspectives, i.e., job demands, job resources, and the associated outcomes:

RQ 1 What are the job demands of crisis translation during COVID-19?

RQ 2 What are the job resources of crisis translation during COVID-19?

RQ 3 What are the outcomes of the job demands and job resources in crisis translation during COVID-19?

3.2.1 Initial Study

The initial study (see Chapter 4) focused on the stressors experienced by translators with their routine work. The results of the initial study fed into the design of the main study. The main study examined the job demands and resources of crisis translation in the context of COVID-19.

In the initial study, an online questionnaire was designed to gather self-report data from professional translators working in New Zealand to capture their perception of their work experience, including work stressors, work factors they were satisfied with, burnout, work engagement, work strain, and job satisfaction. This, in turn, allowed us to identify key factors that may be detrimental to translators' work performance and wellbeing. The questionnaire data were expected to provide an empirical basis informing the main study. In addition, the findings of the initial study were to provide evidence for formulating research hypotheses in the main study. To operationalise the main questions, subsidiary research questions were developed. The sub-questions (question number "I" short for the initial study) linked to the main research questions are:

I1 What factors do the respondents feel stressed about in routine work?

I2 What factors are the respondents satisfied with in routine work?

I3.1 What health complaints do the respondents have in routine work?

I3.2 What are the correlations among burnout, work engagement, work strain, and job satisfaction of the respondents?

3.2.2 Main Study

   The main study used a mixed-methods approach to have an in-depth understanding of the job demands, resources, and the corresponding outcomes of crisis translation during COVID-19. The main study consists of an online questionnaire and interviews that provide both quantitative and qualitative data. Driven by the RQs, the sub-questions (question number "M" short for the main study) and hypotheses for the questionnaire survey are proposed as follows:

M1.1 What factors do the respondents feel stressed about in COVID-19 crisis translation?

M2.1 What factors are the respondents satisfied with in COVID-19 crisis translation?

M3.1 What health complaints do the respondents have in COVID-19 crisis translation?

Hypothesis 1: (1a) Workload, (1b) time pressure, (1c) mental demands, and (1d) work-family conflict are positively associated with burnout in crisis translation during COVID-19.

Hypothesis 2: (2a) Workload, (2b) time pressure, (2c) mental demands, and (2d) work-family conflict positively associated with work strain in crisis translation during COVID-19.

Hypothesis 3: Work engagement is positively associated with organisational support in crisis translation during COVID-19.

Hypothesis 4: Job satisfaction is positively associated with organisational support in crisis translation during COVID-19.

   The questionnaire survey was followed by an online interview survey among the questionnaire respondents who were willing to participant in. The interview survey provided the participants with an opportunity to express their experience and opinions in detail; this allows me to collect in-depth information to explain, understand, and explore the aspects that are not covered in the questionnaire. Thus, quantitative data from the questionnaire survey and qualitative data from the interview survey will complement each other to make the

research findings comprehensive. As the final step of the main study, the questions of the interview survey are:

M1.2 What are the job demands of crisis translation during COVID-19?

M2.2 What are the job and personal resources of crisis translation during COVID-19?

M3.2 What are the outcomes of the job demands and job resources in crisis translation during COVID-19?

A research design map is presented to illustrate how each element interlocks to answer the research questions (Figure 3.2). The next chapter moves on to present the method, results, and discussion of the initial study.

In summary, this section has attempted to provide a focused summary of the frameworks and models relating to work stress, crisis communication, and approaches to destressing in times of crises. As discussed above, the JD-R model acts as the theoretical underpinning for research design. It provides important insights into methods of investigating and analysing work stress in crisis translation. The next section will present the method, results, and discussion of the initial study.

Chapter 4 – Initial Study: Translators' Stress in Routine Work

The initial study set out to investigate the stressors present in routine translation work, as experienced by professional translators working in New Zealand. This was intended to identify the stressors in translation work in general. As presented in Section 3.4.1, the initial study aimed to answer the following questions:

I1 What factors do the respondents feel stressed about in routine work?

I2 What factors are the respondents satisfied with in routine work?

I3.1 What health complaints do the respondents have in routine work?

I3.2 What are the correlations among burnout, work engagement, work strain, and job satisfaction of the respondents?

4.1 Method

4.1.1 Participants and Procedure

Upon ethical approval by the University of Auckland Human Participants Ethics Committee (UAHPEC) on September 20, 2018 (reference number 022107), the online questionnaire was launched on October 31, 2018, for three months. The target population in the initial study was composed of all professional translators registered at the New Zealand Society of Translators and Interpreters (NZSTI), a total of 398 translators when the questionnaire was launched. They were invited to complete the questionnaire on a voluntary basis. Given the NZSTI members were a small population, a member's identity was likely to be traced based on age. To ensure all demographic information used was presented in an anonymous way, we used age groups in the demographic section instead of asking for respondents' specific ages. It was presented as "Translators' Work Experience Survey" on the invitation letter and the participant information sheet to avoid leading the respondents to over sensitise the stress perspective of the translation profession.

The questionnaire (see Appendix A) was hosted on the Qualtrics secure survey platform (http://www.qualtrics.com/). A total of 48 respondents completed the questionnaire between 31 October and 4 December 2018. All statistical analyses were done using IBM SPSS Statistics 28.

4.1.2 Measures

Demographic information was collected through ten questions, including gender, age group (i.e., 18-24, 25-34, 35-44, 45-54, 55-64, 65 and older), employment status, language pair, location, years of work experience, the actual and ideal average working hours per week, annual gross income range, and translation domains.

Factors related to job satisfaction (Q11), including 10 items, were developed by the researcher based on previous literature (e.g., AIIC, 2002; Ruokonen & Koskinen, 2017). This instrument aimed to assess the factors the respondents were satisfied/dissatisfied with. Respondents indicated the degree to which they were satisfied with the given factors with a five-point scale (one = *very dissatisfied*; five = *very satisfied*). Sample items included "the amount of work I have" and "continuous learning, intellectual challenge".

Burnout (Q12) measures included two dimensions: emotional exhaustion (five items) and cynicism (five items) (Maslach & Jackson, 1981). Sample items included "I feel tired when I get up in the morning and have to face another day on the job" (emotional exhaustion), and "I have become more cynical about whether my work contributes anything" (cynicism). These instruments used a five-point Likert scale with ratings ranging from one to five. The possible responses are *always* (five), *very often* (four), *sometimes* (three), *rarely* (two), and *never* (one). Higher scores indicate higher experienced burnout. The scale had an acceptable internal consistency (Cronbach's alpha of .822).

Work engagement (Q12) measures included three questions: (1) "At my work, I feel bursting with energy"; (2) "I am immersed in my work"; and (3) "I am enthusiastic about my

job" (Schaufeli, Shimazu, Hakanen, Salanova, & De Witte, 2017). The scale and possible responses are the same as burnout. Higher scores indicate higher work engagement. The scale had an acceptable internal consistency (Cronbach's alpha of .707).

Stressors in reference to routine work (Q13) mentioned in the survey included 27 items. They were designed and measured based on previous research on translation (e.g., Ruokonen & Koskinen, 2017) and the questionnaire specifically focused on conference interpreters carried out by AIIC (2002). Respondents were asked "The following is a series of factors which may cause some translators to experience work stress. To what extent would you find each factor stressful?" The instrument used a five-point Likert scale with ratings ranging from one to five. The possible responses are *to a great extent* (five), *to a considerable extent* (four), *to a moderate extent* (three), *to a slight extent* (two), and *not applicable* (one). Higher scores indicate a greater extent. Sample items included "time pressure (tight deadline)", "too short notice before assignments", and "texts which are difficult to translate due to unfamiliarity of the topic or complexity of the writing".

Work strain (Q14) measures included six questions (Stanton, Balzer, Smith, Parra, & Ironson, 2001). All responses were scored either as three, one, or zero. All negative responses (i.e., *yes* to a negatively worded item or *no* to a positively worded item) were scored a three. All positive responses (i.e., *yes* to a positively worded item or *no* to a negatively worded item) were scored a zero. All *don't know* responses were scored a one. Higher scores reflect more work strain. The scale had an acceptable internal consistency (Cronbach's alpha of .763).

Job satisfaction (Q14) included one question i.e., makes me feel content (Russell et al., 2004). All responses were scored either as three (*yes*), one (*don't know*), or zero (*no*). Higher scores reflect more job satisfaction.

Health complaints (Q15) include 13 items from Hanisch (1992), and two additional items directly related to translation occupational health complaints (i.e., worsening eyesight and repetitive strain injury) were added. The possible responses are *yes* or *no*, scored as one or zero, respectively. Higher scores indicate more health complaints.

4.2 Results

4.2.1 Demographic Characteristics

We received 48 complete responses from the 398 NZSTI members. The data analysis was therefore based on the 48 valid responses, representing 12.1% of the population, which allows scope for Pearson correlation analysis (David, 1938). The responses were analysed using descriptive statistics, either presented as frequencies or mean (*M*) and standard deviation (*SD*). Pearson's correlation coefficient *r* was used to show correlations between variables. Among the complete responses, 72.9% were female, and 27.1% were male. 64.6% of the respondents were between the age of 35 and 54, among which 37.5% were between 45 and 54 and 27.1% were between 35 and 44 (Figure 4.1). Notably, 87.5% of the translators were self-employed, including freelancers or those running their own businesses, while only 8.4% were either employed full-time or part-time (Figure 4.2). The average years of translation work experience were 11.97 (*SD* = 9.14). Fifty percent earned less than $15,000 from translation in the year before the 2018 survey, whereas none earned over $99,000 (Figure 4.3). The most common translation domains respondents worked with were immigration (77%), medical and pharmaceutical (58%), and advertising, marketing and public relations (50%).
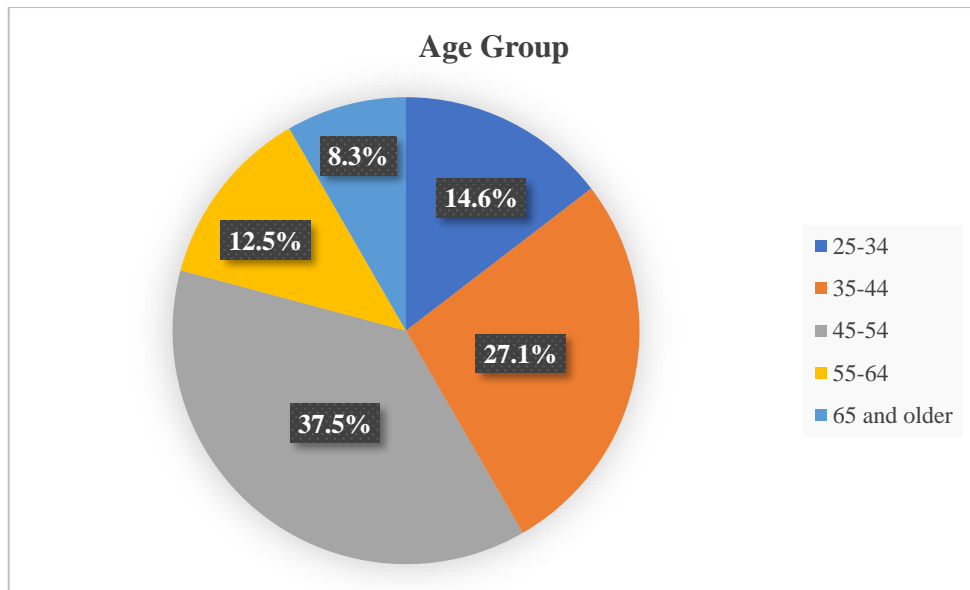
Figure 4.1 Age group of the respondents

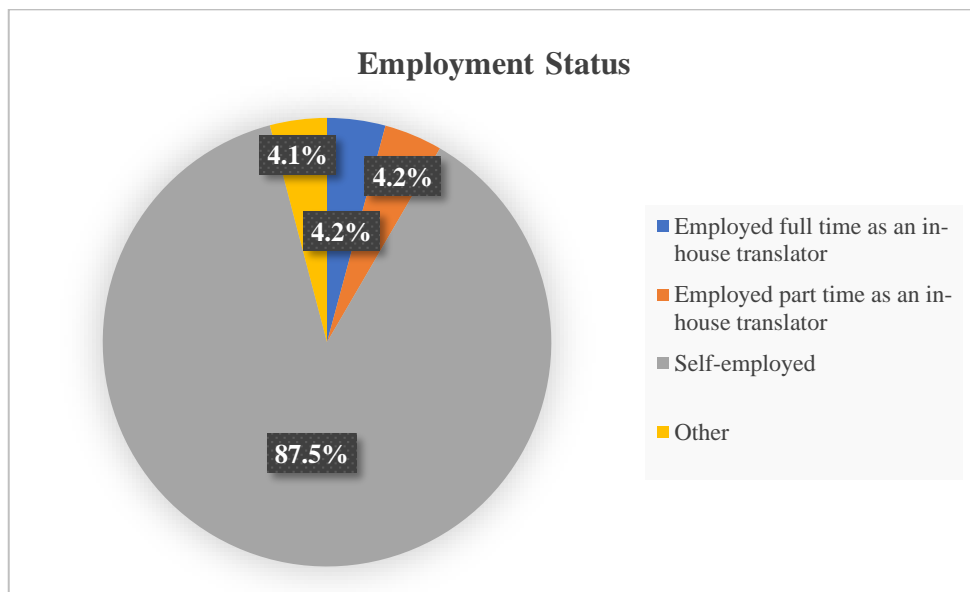This figure illustrates the percentage of respondents in different age groups.

Figure 4.2 Employment status of the respondents

This figure shows the percentage of respondents with different employment statuses.
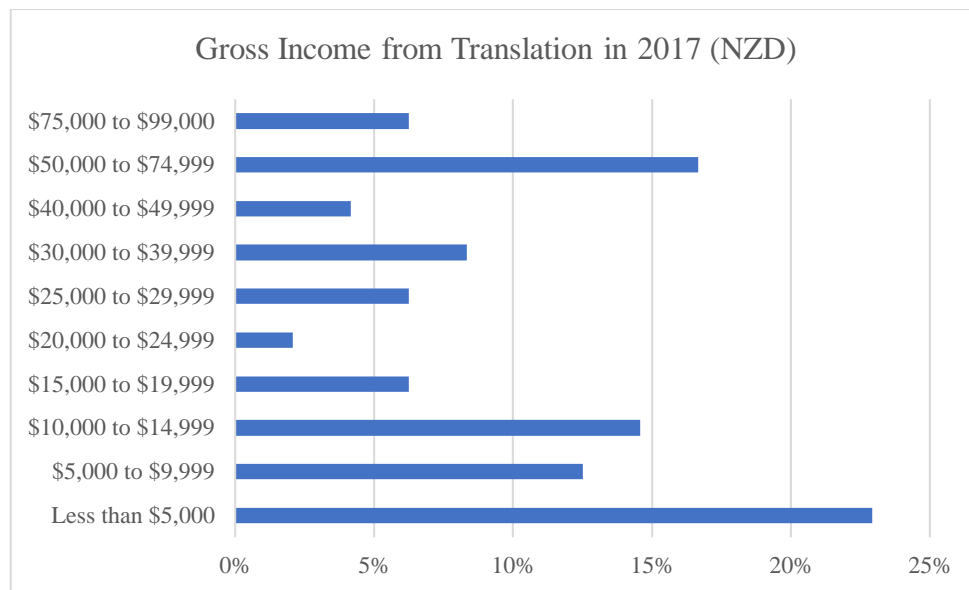
Figure 4.3 Respondents' gross income

This figure illustrates the percentage of respondents' gross income from translation in 2017 (NZD).

4.2.2 Descriptive Statistics and Correlations between Variables

All calculations were done using IBM SPSS Statistics 28. The responses were analysed using descriptive statistics, either presented as frequencies and percentages or as mean (M) and standard deviation (SD). A Pearson correlation test was conducted. The correlations between the variables included burnout, work engagement, job satisfaction, and work strain.

4.2.2.1 Factors that respondents feel stressed about

The means and standard deviations of the factors that respondents felt stressed about are shown in Table 4.1. The most stressful factors are time pressure (tight deadline) ($M = 3.38$, $SD = .981$), too little work ($M = 3.29$, $SD = 1.320$), lack of job security ($M = 3.10$, $SD = 1.561$), too short notice before assignments ($M = 2.98$, $SD = 1.211$), and not receiving sufficient background material ($M = 2.94$, $SD = 1.359$). The factors that had the lowest scores included friends or colleagues asking about the content of a confidential document ($M = 1.35$, $SD = .785$), translating a text containing information that may not be acceptable to the

religion or culture of the target audience ($M = 1.50$, $SD = 1.031$), translating a text on a

controversial topic that expresses the opposite opinions to theirs ($M = 1.71$, $SD = 1.051$), and

translating a text containing unfair and discriminatory statements against a minority ($M = 1.77$, $SD = 1.341$). Thus, the respondents did not perceive the potential ethical issues (i.e., the

factors with the lowest scores) in the profession as work stressors.

Table 4.1 Mean scores on individual items on the factors that the respondents feel stressed about

Items	Mean	SD
Time pressure (tight deadline)	3.38	.981
Too little work	3.29	1.320
Lack of job security	3.10	1.561
Too short notice before assignments	2.98	1.211
Lack of career opportunities	2.94	1.493
Not receiving sufficient background materials	2.94	1.359
Others' lack of consideration and appreciation of my work (e.g., complexity and technicality of the tasks involved)	2.92	1.252
Prolonged periods of extremely intense concentration	2.85	1.185
Uncertainty about my future	2.83	1.478
Lack of technical support (e.g., slow computer or internet connection, unavailable computer-aided translation tools, problems with software or translation platform)	2.77	1.418
Long working hours	2.60	1.233
Extra work beyond my job description (e.g., liaison with difficult clients, dealing with complaints)	2.54	1.414
Imposition of certain technologies (e.g., unfamiliar computer-aided translation tools)	2.52	1.429
Repetitive or monotonous work	2.50	.945
Texts which are difficult to translate due to unfamiliarity of the topic or complexity of the writing	2.46	.922
Actual and perceived lack of skills	2.38	1.282
Reformulation and adaptation of the source texts for the target group	2.29	1.220
Miscommunication with clients	2.29	1.271
Not enough rest breaks	2.27	1.162
Too much work	2.21	1.129
Inadequate training	2.15	1.255
Translating a text containing information that I know is untrue or inaccurate	1.96	1.254
Lack of autonomy	1.85	1.185
Translating a text containing unfair and discriminatory statements against a minority	1.77	1.341
Translating a text on a controversial topic that expresses opposite opinions that to mine	1.71	1.051
Translating a text containing information that may not be acceptable to the religion or culture of the target audience	1.50	1.031

Friends or colleagues asking me about the content of a confidential document	1.35	.785

4.2.2.2 Factors that respondents were satisfied with

Table 4.2 shows the statistical results of the factors that the translators were satisfied with. The respondents were most content with flexibility of work schedule ($M = 4.06$, $SD = .861$), continuous learning, intellectual challenge ($M = 3.83$, $SD = .907$), degree of work responsibility ($M = 3.67$, $SD = .953$), and end-use of the translated text ($M = 3.67$, $SD = .781$). The factors with the lowest satisfaction included career progression potential ($M = 2.85$, $SD = .967$), opportunity to meet people (interesting colleagues, clients, etc.) ($M = 2.92$, $SD = .986$), socioeconomic status ($M = 2.96$, $SD = 1.031$), and the amount of work ($M = 3.00$, $SD = 1.321$).

Table 4.2 Mean scores on individual items on the factors that the respondents are satisfied with

Items	Mean	SD
Flexibility of work schedule	4.06	.861
Continuous learning, intellectual challenge	3.83	.907
Degree of work responsibility	3.67	.953
End-use of the translated text	3.67	.781
Exposure to a variety of subjects	3.42	1.028
Others' respect and appreciation	3.31	.993
The amount of work I have	3.00	1.321
Socioeconomic status	2.96	1.031
Opportunity to meet people (interesting colleagues, clients, etc.)	2.92	.986
Career progression potential	2.85	.967

4.2.2.3 Health complaints

Table 4.3 indicates respondents' health complaints. In terms of the most common health issues, 52.1% of the respondents had back problems and repetitive strain injury. Fifty percent had difficulty falling asleep or staying asleep and 47.9% suffered from worsening eyesight. By contrast, only 2.1% of the respondents had ulcers and 4.2% had heart disease or a heart condition.

Table 4.3 Frequency and percentage of individual items on health complaints

Items	N	%
Back problems	25	52.1
Repetitive Strain Injury (e.g., soreness, tingling or discomfort in the neck, arms, wrists, fingers or shoulders)	25	52.1
Difficulty falling asleep or staying asleep	24	50
Worsening eyesight	23	47.9
Feel exhausted for no good reason	12	25
Severe headaches	10	20.8
Frequent headaches	9	18.8
Frequent colds	9	18.8
Shortness of breath upon exerting oneself	6	12.5
High blood pressure	5	10.4
Nightmares	5	10.4
Respiratory or lung problems	4	8.3
Frequent stomach pains	3	6.3
Heart disease or condition	2	4.2
Ulcer	1	2.1

Table 4.4 shows the correlations between the variables, including burnout, work engagement, job satisfaction, and work strain. The details of the correlations are provided below.

4.2.2.4 Burnout

There is a significant, negative relationship between burnout and job satisfaction ($r = -.397$, $p < .01$). The results indicate that higher levels of burnout are associated with lower levels of job satisfaction.

The results also show that there is a significant, positive relationship between burnout and work strain ($r = .448$, $p < .01$). The results suggest that higher levels of burnout are associated with higher levels of work strain.

4.2.2.5 Work engagement

There is a significant, positive relationship between work engagement and job satisfaction ($r = .332$, $p < .05$). The results indicate that higher levels of work engagement are associated with higher levels of job satisfaction.

4.2.2.6 Job satisfaction

There is a significant, negative relationship between job satisfaction and work strain ($r = -.630$, $p < .01$). The results suggest that higher levels of job satisfaction are associated with lower levels of work strain.

Based on the results, the research questions in the initial study can be answered:

I1 What factors do the respondents feel stressed about in routine work?

The primary factors that the sample felt stressed about include time pressure, too little work, lack of job security, too short notice before assignments, and not receiving sufficient background material.

I2 What factors are the respondents satisfied with in routine work?

The primary factors that the sample was satisfied with include flexibility of work schedule, continuous learning and intellectual challenge, and degree of work responsibility.

I3.1 What health complaints do the respondents have in routine work?

The most common health complaints present among the respondents include back problems, repetitive strain injury, difficulty falling asleep or staying asleep, and worsening eyesight.

I3.2 What are the correlations among burnout, work engagement, work strain, and job satisfaction?

First, higher levels of burnout are associated with lower levels of job satisfaction and higher levels of work strain. Second, higher levels of work engagement are associated with higher levels of job satisfaction. Third, higher levels of job satisfaction are associated with lower levels of work strain (see Table 4.4).

Table 4.4 Correlations between burnout, work engagement, job satisfaction, and work strain

	Mean (SD)	Cronbach's α	1.	2.	3.
1 burnout	2.346 (.588)	.822	-	-	-
2 work engagement	3.382 (.623)	.707	-.281	-	-
3 job satisfaction	2.48 (1.052)	-	-.397**	.332*	-
4 work strain	1.024 (.767)	.763	.448**	.037	-.630**

*Note: * p < .05, ** p < .01*

4.3 Discussion

The aims of the initial study were to: 1) identify the factors that the respondents, who were NZSTI professional translators, feel stressed about and satisfied with in routine work; 2) examine the correlations between burnout, work engagement, job satisfaction, and work strain. Results suggest that the most stressful factors in routine work included tight deadlines, too little work, lack of job security, too short notice before assignments, and not receiving sufficient background material. The respondents were satisfied with flexibility of work schedule, continuous learning and intellectual challenge, and degree of work responsibility. Regarding the correlations among the variables, higher levels of burnout are correlated with lower levels of job satisfaction and higher levels of work strain. Higher levels of work engagement are correlated with higher levels of job satisfaction. Higher levels of job satisfaction are correlated with lower levels of work strain. The results of the initial study will be applied to the design of the main study that focuses on crisis translation during COVID-19, albeit primarily based on crisis translation in China.

Among the five factors that respondents feel most stressed about, two (e.g., tight deadlines and too short notice before assignments) point to time pressure. This is in line with previous literature which suggests that time pressure is one of the most significant stressors in the translation profession (e.g., Courtney & Phelan, 2019; Hansen-Schirra, Hofmann, & Nitzke, 2018; Tsai, 2005). In a crisis setting with limited resources in all aspects (Silove,

Ventevogel, & Rees, 2017), the issues of time pressure are highly likely to be intensified. Literature on crisis translation during COVID-19 points out that translators had to respond to time-critical translation needs and deliver timely and accurate translation services (Wang, 2019). Thus, time constraints were one of the most significant challenges for translators amid the pandemic (Zheng, 2020). According to the JD-R model, time pressure can be categorised as a job demand that requires sustained effort or skills (Bakker & Demerouti, 2007). Given the prevalence of time pressure in translation routine work and crisis translation, the perspective of time pressure is worth further exploring in the main study.

Another two stressful factors (i.e., too little work and lack of job security) indicate that the respondents did not have enough workload and job opportunities. The first factor, too little work, is different from the findings of previous research studies. In a survey of 474 translators who were members of the Chartered Institute of Linguists (UK) or the Irish Translators' and Interpreters' Association, more than half of respondents indicated that they often experienced a marked increase in workload (Courtney & Phelan, 2019). Yet, recent years have witnessed a decrease in job security in the translation and interpreting profession (e.g., Lee, 2017; Lee, Choi, Huh, & Chang, 2016). Despite being a stressor for the surveyed New Zealand professional translators in routine work, however, in crisis translation, we argue that too little work will not likely be a stressor as there have been high demands for translation and language services during the pandemic (e.g., Piller et al., 2020; Wang, 2019; Zheng, 2020). Second, research studies have found that crisis translation is primarily delivered by volunteers (Munro, 2010; Utunen et al., 2020; Wang, 2019; Zheng, 2020). We therefore believe that the issue of job security is also irrelevant in crisis translation during COVID-19. Therefore, these two factors will be removed from the questionnaire survey for the main study.

Regarding the correlations between burnout, work engagement, job satisfaction, and work strain, results are consistent with previous research findings (e.g., Bakker, Demerouti, & Sanz-Vergel, 2014; Hakanen, Schaufeli, & Ahola, 2008; Schaufeli, 2017). Extensive research has found a positive correlation between burnout and work strain (e.g., Durand, Bompard, Sportiello, Michelet, & Gentile, 2019) and between work engagement and job satisfaction (e.g., Karanika-Murray, Duncan, Pontes, & Griffiths, 2015). This initial study is one of the few studies in the field of Translation Studies that systematically examined the correlations between the above variables among translators by measuring several psychological constructs. Therefore, the findings of the correlations in the initial study provide evidence for formulating research hypotheses in the main study.

Given specific challenges in crisis settings, the job demands in crisis translation during COVID-19 are nevertheless not limited to the factors that have been examined in the initial study. In addition to time pressure, research has found other challenges that crisis translators faced during the pandemic, such as limited language proficiency, limited technical knowledge (Zheng, 2020), heavy workload (Wang, 2019), translation and multilingual terminology standards, top-down and bottom-up language management (Piller et al., 2020), etc. Contrary to the high job demands in crisis translation, resources for tackling the challenges are primarily limited to collaboration and teamwork (Zheng, 2019). Results of the initial study and previous research findings about crisis translation indicate that job demands in crisis translation during COVID-19 are rather complex. To fully understand job demands and resources in crisis translation amid the pandemic, the main study has been, therefore, expanded to an online questionnaire and interview surveys. These two surveys complement each other, allowing us to thoroughly examine job demands, resources, and the outcomes of crisis translation during COVID-19. The amendments of the factors and variables examined in the main study questionnaire are shown in Figure 4.4.
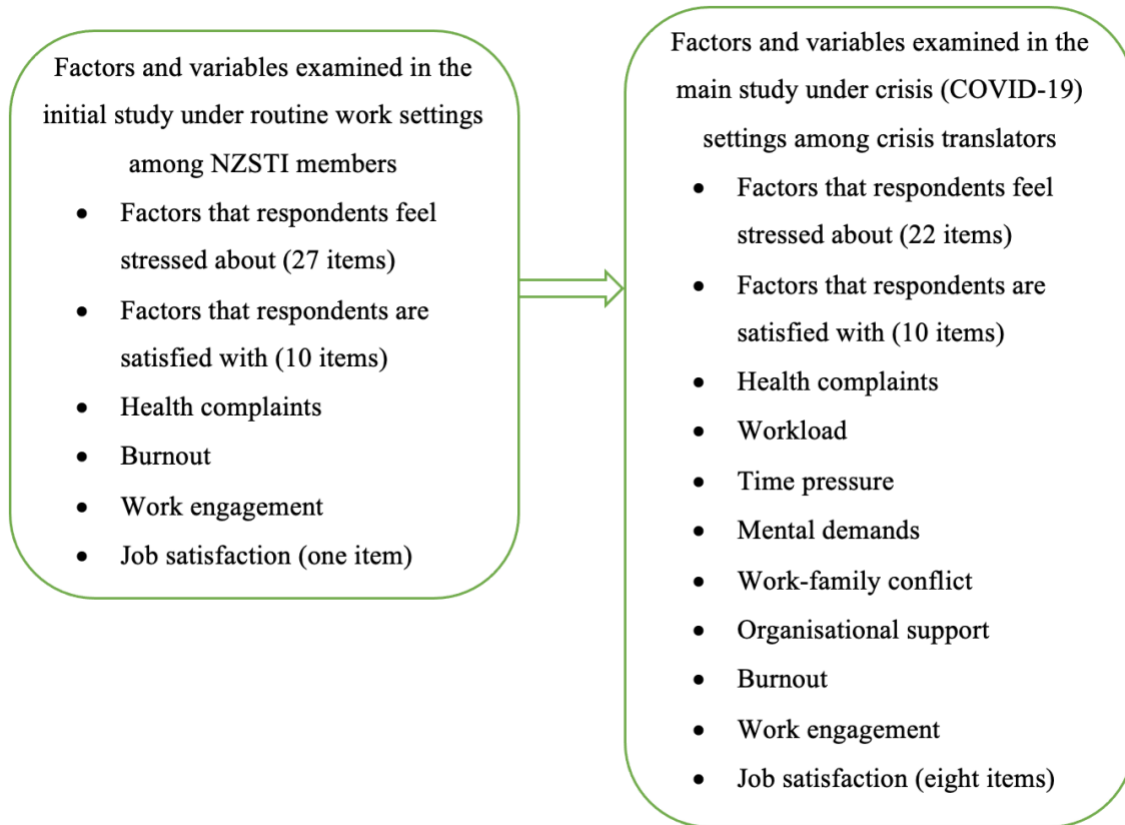
Figure 4.4 Factors and variables

This figure illustrates the factors and variables examined in the questionnaires of the initial and main studies.

In conclusion, this initial study has helped us to identify and confirm the factors that the surveyed NZSTI members feel stressed about and are satisfied with in their routine work. Results have implications for the design of the main study. I isolated key factors by expanding more job demands and removing some factors that are irrelevant to crisis translation based on previous research studies. The next chapter will illustrate the methods and results of the main study.

Chapter 5 – Main Study: Work Stress in COVID-19 Crisis Translation

The main study used a mixed-methods approach to have an in-depth understanding of the job demands, resources, and the corresponding outcomes of crisis translation during COVID-19. The main study consists of an online questionnaire and interviews that provide both quantitative and qualitative data. It seeks to identify work stressors in crisis translation that affect crisis translators' wellbeing. As mentioned in Chapter 1, the focus of the main study shifted from the New Zealand context to the COVID-19 settings with data primarily collected from crisis translators based in China.

5.1 Online Questionnaire

The online questionnaire in the main study (see Appendix B) was adapted from the one used in the initial study. It was tailored to suit the COVID-19 pandemic and aimed to examine the impact of job demands and resources on crisis translators' wellbeing in the context of the COVID-19 crisis. Crisis translators in this study are those who carried out COVID-19 related translation and interpreting work since the outbreak of the pandemic in December 2019. As the COVID-19 pandemic first broke out in China and then swiftly swept the entire world, the survey mainly targeted, but was not only limited to, Chinese translators and interpreters. Thus, three versions of the questionnaire, including English, Simplified Chinese, and bilingual (i.e., English and Simplified Chinese), were made available on Qualtrics for respondents to choose from. The questionnaire was first created in English and then translated into Chinese by the researcher, an experienced professional translator.

As stated in Section 3.4.2, the questionnaire survey aims to answer and investigate the following questions and hypotheses:

M1.1 What factors do the respondents feel stressed about in COVID-19 crisis translation?

M2.1 What factors are the respondents satisfied with in COVID-19 crisis translation?

M3.1 What health complaints do the respondents have in COVID-19 crisis translation?

Hypothesis 1: (1a) Workload, (1b) time pressure, (1c) mental demands, and (1d) work-family conflict are positively associated with burnout in crisis translation during COVID-19.

Hypothesis 2: (2a) Workload, (2b) time pressure, (2c) mental demands, and (2d) work-family conflict are positively associated with work strain in crisis translation during COVID-19.

Hypothesis 3: Work engagement is positively associated with organisational support in crisis translation during COVID-19.

Hypothesis 4: Job satisfaction is positively associated with Organisational support in crisis translation during COVID-19.

The formulation of the hypotheses is provided as below.

5.1.1 Hypotheses

According to the health impairment process and the motivational process in the JD-R model, job demands lead to exhaustion and health problems, whereas job resources inspire employees to reach their full potential, thus resulting in high employee engagement (Bakker & Demerouti, 2007). We applied this dual process to crisis translation and proposed four hypotheses as below.

5.1.1.1 Job demands and burnout

The JD-R model explains the positive correlation between job demands and burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Workload, as one of the demanding aspects of work, is related to physiological and psychological costs (Demerouti et al., 2001). The existing literature has illustrated the strong correlation between workload and burnout across a wide range of industries such as healthcare (Greenglass, Burke, & Fiksenbaum, 2001), mass communication (Liu & Lo, 2018), and education (Van Droogenbroeck, Spruyt, & Vanroelen, 2014). For example, it was found that workload has a significant, moderate, positive relationship with emotional exhaustion, one of the dimensions of burnout among Belgian senior teachers (Van Droogenbroeck et al., 2014).

Previous studies have indicated that time pressure is strongly associated with burnout (e.g., Cao & Naruse, 2019; Darawad, Nawafleh, Maharmeh, Hamdan-Mansour, & Azzeghaiby, 2015; Skaalvik & Skaalvik, 2017). In particular, among several potential stressors, including discipline problems, time pressure, low motivation, and value dissonance, time pressure is the strongest predictor of emotional exhaustion among schoolteachers (Skaalvik & Skaalvik, 2017). Besides emotional exhaustion, more time pressure also leads to higher depersonalisation (Cao & Naruse, 2019; Darawad et al., 2015; Naruse et al., 2012).

According to the definition of job demands by Bakker, Demerouti, and Euwema (2005, p.170), job demands refers to "those physical, social, or organisational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs." Therefore, mental demands are also categorised as an aspect of job demands that involves psychological effort. In previous studies, mental demands have shown a positive relationship with burnout (e.g., Le Blanc, Bakker, Peeters, van Heesch, & Schaufeli, 2001; Livne & Rashkovits, 2018; Schaufeli, Keijsers, & Miranda, 1995). For instance, a survey of 1,005 participants acknowledged that mental demands are positively correlated with a health-related indicator (i.e., burnout) of employee wellbeing (Livne & Rashkovits, 2018).

The term *work-family conflict* refers to "a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985, p. 77). Research has found that conflict between work and family is correlated with burnout (e.g., Burke & Greenglass, 2001; Terry & Woo 2021; Zábrodská et al., 2018). For instance, a survey of 362 front line social workers found that work-family conflict leads to emotional exhaustion, one of the dimensions of burnout (Travis, Lizano, & Mor Barak, 2016). On the basis of the aforementioned literature, we propose that:

Hypothesis 1: (1a) Workload, (1b) time pressure, (1c) mental demands, and (1d) work-family conflict are positively associated with burnout in crisis translation during COVID-19.

5.1.1.2 Job demands and work strain

There is a consensus that high job demands (e.g., heavy workload, time pressure, mental demands, and work-family conflict) are related to high work strain (e.g., Mayerl, Stolz, Waxenegger, Rásky, & Freidl, 2016; Perrewe & Ganster, 1989; Trépanier, Fernet, & Austin, 2013). For example, a study of 267 university staff members found that work-family conflict predicts stress levels and psychological strain (Panatik et al., 2012). As such, we propose that:

Hypothesis 2: (2a) Workload, (2b) time pressure, (2c) mental demands, and (2d) work-family conflict are positively associated with work strain in crisis translation during COVID-19.

5.1.1.3 Organisational support and work engagement

Organisational support plays a crucial role in motivating work engagement (Saks, 2006; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Research has shown that organisational support positively impacts work engagement, which results in more productive behaviours and optimal performance (Jackson, 2014; Ram & Prabhakar, 2011; Sulea et al., 2012). It has been found that there is a positive relationship between organisational support and work engagement (e.g., Bano, Vyas, & Gupta, 2015; Rothmann, & Jordaan, 2006; Saks, 2006). A number of studies have suggested that volunteers who positively experienced supervision, communication, and organisational support were willing to work longer and less likely to leave the organisation (e.g., Alfes, Shantz, & Bailey, 2016; Stone, 2004; Studer, 2015). Thus, in the crisis setting, it is believed that organisational support is also positively correlated with work engagement.

Hypothesis 3: Work engagement is positively associated with organisational support in crisis translation during COVID-19.

5.1.1.4 Organisational support and job satisfaction

Findings indicate a positive correlation between organisational support and job satisfaction (e.g., Bentley et al., 2016; Colakoglu, Culha, & Atay, 2010; Mabasa & Ngirande, 2015). Furthermore, research has found that perceived organisational support is most strongly related to job satisfaction among other variables including organisational commitment, transactional leadership, transformational leadership, and level of education (Mahmoud, 2008). In addition, a significant, positive relationship between the two variables has also been found in the initial study. Thus, the following hypothesis is proposed:

Hypothesis 4: Job satisfaction is positively associated with organisational support in crisis translation during COVID-19.

5.1.2 Method

The online questionnaire in the main study was adapted from the one used in the initial study. It was tailored to suit the COVID-19 pandemic and aimed to examine the impact of job demands and resources on crisis translator wellbeing in the context of the crisis. Crisis translators in this study are those who carried out COVID-19 related translation and interpreting work since the outbreak of the pandemic in December 2019.

5.1.2.1 Participants and Procedure

Upon ethical approval by the UAHPEC on September 9, 2020 (reference number UAHPEC2811), the survey was launched on September 10, 2020 and lasted for four months. Regarding participant recruitment, we recruited a convenience sample and snowballing sampling was used. We first contacted the crisis manager at the Office of Foreigner Affairs in the Municipal Government of Wuhan that was formed in January and disbanded in April 2020. This crisis translation team was organised by the Wuhan local government, consisting

of 32 translators. The founding members were five professional translators/interpreters who were the staff members of the local authority. Twenty-seven were volunteers including university students and professional translators/interpreters. The former manager agreed to disseminate the invitation to the survey on behalf of the researchers to the team members. We sent the questionnaire invitation to the former manager via email. The manager then distributed the questionnaire invitation to the potential participants via email.

Due to the low response rate of this crisis translation team, the researcher contacted other volunteer translation teams that were specifically set up for the pandemic across China via Google search. The contact information of those translation teams was publicly available online. Upon the approval from the organisers of four volunteer translation teams, the researcher disseminated the survey invitation to the volunteer translation teams' WeChat groups as all of the volunteer translation teams were set up through WeChat. WeChat is a Chinese multi-purpose messaging and social media application. All the participants were invited on a voluntary basis, following the University of Auckland human ethics framework.

In addition to the volunteer translators, the researcher also contacted among her personal contacts including a self-employed professional translator and conference interpreter based in Shanghai. He agreed to disseminate the survey invitation to his colleagues, employees, and acquaintances who had done COVID-19-related translation/interpreting work on behalf of the researcher. We emphasised on the participant information sheet and in the recruitment process that the survey only targeted those who had done pandemic-related translation/interpreting work amid COVID-19 to ensure all the participants met the recruitment criteria.

The invitation included a link to the anonymous online questionnaire hosted on Qualtrics. Participants were provided with the participant information sheet and the informed

consent that explained the anonymous and voluntary nature of the data collection before proceeding with the online survey. We received 124 valid responses in total.

5.1.2.2 Measures

For all measures, higher scores reflect higher levels of each construct. We deleted five irrelevant items of the factors that respondents feel stressed about. Factors that respondents are satisfied with, health complaints, burnout, and work engagement are the same as the ones used in the initial study (see Chapter Four). The Cronbach's alpha reliability values of burnout and work engagement in the main study are .912 and .764 respectively.

Workload. The seven-item workload factor (Q8) from the NIOSH Generic Job Stress Questionnaire (NIOSH, 2017) was rated along a five-point scale (one = *hardly any*; five = *a great deal*). Sample items were "How much slowdown in the workload do you experience," and "How many projects, assignments, or tasks do you have". The scale had an acceptable internal consistency (Cronbach's alpha of .802).

Time pressure. Time pressure was measured by three items developed by the researcher based on the previous literature. This scale was reliable (Cronbach's alpha of .841). The question (Q17) reads, "The following is a series of factors which may cause some translators/interpreters to experience work stress. To what extent did you find each factor stressful in the response phase of COVID-19?" The items that measured time pressure included "(1) time pressure (tight deadline), (3) not enough rest breaks, and (4) too short notice before assignments". Responses were rated on a five-point Likert scale ranging from one (*not at all*) to five (*to a great extent*). This scale yielded a Cronbach's alpha reliability value of .841.

Mental demands. Mental demands were measured with the three-item mental demands factor in the NIOSH Generic Job Stress Questionnaire (NIOSH, 2017). A sample item was "My job requires a great deal of concentration." Responses were rated on a five-

point Likert scale ranging from one (*strongly disagree*) to five (*strongly agree*). This scale yielded a Cronbach's alpha reliability value of .817.

Work-family conflict. Three-item work-family conflict scale was used to measure conflict between work and family demands. Scale items included "My work keeps me from my family activities more than I would like". Responses were rated on a five-point Likert scale ranging from one (*strongly disagree*) to five (*strongly agree*). This scale yielded a Cronbach's alpha reliability value of .931.

Organisational support. Perceived organisational support refers to workers' belief that the organisation values their contributions and cares about their wellbeing. It was assessed with a five-item measure using a five-point scale ranging from one (*strongly disagree*) to five (*strongly agree*). A sample item included "My organisation takes pride in my accomplishments at work" (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002). The scale had an acceptable internal consistency (Cronbach's alpha of .932).

Work strain. Work strain measures included 15 questions (Stanton et al., 2001). Sample items included "demanding", "pressured", and "calm". All responses were scored either as three, one, or zero. All negative responses (i.e., yes to a negatively worded item or no to a positively worded item) were scored a three. All positive responses (i.e., yes to a positively worded item or no to a negatively worded item) were scored a zero. All don't know responses were scored a one. The scale had an acceptable internal consistency (Cronbach's alpha of .886).

Job satisfaction. Job satisfaction included eight items (Russell et al., 2004). Sample items included "makes me feel content" and "undesirable". All responses were scored either as three (*yes*), one (*don't know*), or zero (*no*). All positive responses (i.e., yes to a positively worded item or no to a negatively worded item) were scored a three. All negative responses (i.e., yes to a negatively worded item or no to a positively worded item) were scored a zero.

All don't know responses were scored a one. The scale had an acceptable internal consistency (Cronbach's alpha of .825).

5.1.3 Results

5.1.3.1 Demographic Characteristics

The questionnaire survey in the main study investigated the job demands, resources, and outcomes in the context of the COVID-19 pandemic. The participants included those who carried out COVID-19 related translation and interpreting work since the pandemic outbreak in December 2019. Table 5.1 shows the demographic characteristics of the respondents. In total, 124 respondents completed the online questionnaire between September 10 and December 7, 2020. On average, the sample were 66% female and 34% male, 31.5 of age ($SD = 7.76$). Forty-eight percent of the participants worked as a translator, 16% interpreter, and 36% both translators and interpreters. Participants were grouped into three categories based on their educational background and work experience in translation and interpreting. Fifty-three percent were professional translators/interpreters, 23% were students working toward a degree in Translation/Interpreting Studies, and 24% were bilinguals/multilinguals without a degree in Translation/Interpreting Studies and did not work as a paid translator/interpreter. Among professionals, the mean years of experience were 8.8 ($SD = 6.06$).

Eighty-seven percent of the respondents were bilingual, and 13% were multilingual. The language pair of the majority was Chinese-English (69.4%), followed by Chinese-Japanese (4%), and Chinese-Spanish (3.2%). Other language pairs included Chinese-Russian (2.4%), Chinese-Italian (2.4%), Chinese-Korean (1.5%), Chinese-French (0.8%), Chinese-Arabic (0.8%), English-Turkish (0.8%), English-Korean (0.8%), English-Spanish (0.8%), English-Russian (0.8%), and Chinese Sign Language (0.8%).

Among multilinguals, the top language pair was Chinese-English-French (3.2%). Others included Chinese-English-Burmese (0.8%), Chinese-English-German (0.8%), Chinese-English-Japanese (0.8%), Chinese-English-Korean (0.8%), Chinese-English-Spanish (0.8%), Chinese-English-Russian (0.8%), and Chinese-English-Cantonese (0.8%). Three participants (2.4%) had four working languages, including Chinese-English-Italian-Spanish (0.8%), Chinese-English-Japanese-Korean (0.8%), and Chinese-English-French-Spanish (0.8%), respectively.

Table 5.1 Demographic characteristics of the respondents

Demographics	Sample	
N	124	
Gender	N	%
Male	42	33.9
Female	82	66.1
Age (in years)		
Range	20 - 63	
Mean	31.5	
SD	7.76	
Work type	N	%
Translator	59	47.6
Interpreter	20	16.1
Both	45	36.3
Education and work experience	N	%
Professional	66	53.2
Student	31	25.0
Bilingual/multilingual	27	21.8

Professional work years		
Range	.5 - 29	
Mean	8.79	
SD	6.06	
Language pair	N	%
Chinese-English	86	69.4
Chinese-Japanese	5	4
Chinese-Spanish	4	3.2
Chinese-Russian	3	2.4
Chinese-Italian	3	2.4
Chinese-Korean	2	1.6
Chinese-French	1	.8
Chinese-Arabic	1	.8
Chinese Sign Language	1	.8
English-Turkish	1	.8
English-Korean	1	.8
English-Spanish	1	.8
English-Russian	1	.8
Chinese-English-French	4	3.2
Chinese-English-Cantonese	1	.8
Chinese-English-Japanese	1	.8
Chinese-English-Korean	1	.8
Chinese-English-German	1	.8
Chinese-English-Spanish	1	.8
Chinese-English-Russian	1	.8

Chinese English-Burmese	1	.8
Chinese-English-Japanese-Korean	1	.8
Chinese-English-Spanish-Italian	1	.8
Chinese-English-Spanish-French	1	.8

5.1.3.2 Descriptive Statistics

All calculations were done using IBM SPSS Statistics 28. The responses were analysed using descriptive statistics, either presented as frequencies and percentages or as mean (*M*) and standard deviation (*SD*).

A Pearson correlation test was conducted. The correlations between the variables included workload, time pressure, mental demands, work-family conflict, organisational support, burnout, work engagement, job satisfaction, and work strain. Simple linear regressions were calculated to predict work engagement from organisational support and job satisfaction from organisational support; multiple linear regressions were calculated to predict burnout from job demands (i.e., workload, time pressure, mental demands, and work-family conflict) and work strain from job demands.

Factors that respondents feel stressed about. The most stressful factors were prolonged periods of extremely intense concentration (*M* = 3.27, *SD* = .972), time pressure (*M* = 3.19, *SD* = .932), long working hours (*M* = 3.08, *SD* = 1.079), and not receiving sufficient background materials (*M* = 3.07, *SD* = 1.113) (Table 5.2).

Factors that respondents are satisfied with. Respondents were most satisfied with continuous learning (*M* = 3.84, *SD* = .70), degree of work responsibility (*M* = 3.67, *SD* = .77), and end-use of the translated text/interpretation (*M* = 3.63, *SD* = .73) (Table 5.3). Table 5.3 indicates translators' health complaints. In terms of the most common health issues, 52.1% of the respondents had back problems and repetitive strain injury. 50% had difficulty

falling asleep or staying asleep and 47.9% suffered from worsening eyesight. By contrast,

only 2.1% of the respondents had ulcer and 4.2% had heart disease or condition.

Health complaints. Table 5.4 indicates translators' health complaints. In terms of the

most common health issues, 52.4% of the respondents had shoulder or neck problems. Forty-

six percent had back problems and 41.9% suffered from eye irritation.

Table 5.2 Mean scores on individual items on the factors that the respondents feel stressed about

Items	Mean	SD
Prolonged periods of extremely intense concentration	3.27	.972
Time pressure (tight deadline)	3.19	.932
Too short notice before assignments	3.10	1.078
Long working hours	3.08	1.079
Not receiving sufficient background materials	3.07	1.113
Not enough rest breaks	2.87	1.111
Too much work	2.86	1.212
Inadequate training	2.78	1.253
Information which is difficult to translate due to unfamiliarity of the topic or complexity of the writing	2.75	1.049
Actual and perceived lack of skills	2.74	1.140
Imposition of certain technologies (e.g., unfamiliar computer-aided translation tools)	2.72	1.233
Lack of technical support (e.g., slow computer or internet connection, unavailable computer-aided translation tools, problems with software or translation platform)	2.65	1.155
Reformulation and adaptation of the source texts for the target group	2.57	1.204
Extra work beyond my job description (e.g., liaison with difficult clients, dealing with complaints)	2.44	1.231
Others' lack of consideration and appreciation of my work (e.g., complexity and technicality of the tasks involved)	2.41	1.097
Miscommunication with clients	2.33	1.160
Repetitive or monotonous work	2.26	.936
Translating/interpreting information that I know is untrue or inaccurate	1.96	1.254
Translating/interpreting a controversial topic that expresses the opposite opinions that to mine	1.90	1.007
Translating/interpreting information containing information that may not be acceptable to the religion or culture of the target audience	1.83	.899
Translating/interpreting unfair and discriminatory statements against a minority	1.73	.982
Friends or colleagues asking me about the content of a confidential document	1.68	.861

Table 5.3 Means and standard deviations of the factors that the respondents were satisfied with

Items	Mean	SD
Continuous learning, intellectual challenge	3.84	.703
Degree of work responsibility	3.67	.773
End-use of the translated text/interpretation	3.63	.727
Exposure to a variety of subjects	3.62	.728
Flexibility of work schedule	3.35	.946
Others' respect and appreciation	3.20	1.074
The amount of work I have	3.16	.974
Meeting people (interesting colleagues, clients, etc.)	3.05	.970
Possibility of career progression due to this work experience	2.89	1.170
Socioeconomic status	2.76	1.171

Table 5.4 Frequency and percentage of individual items on health complaints

Items	N	%
Shoulder or neck problems	65	52.4
Back problems	57	46
Eye irritation	52	41.9
Feel exhausted for no good reason	44	35.5
Difficulty falling asleep or staying asleep	38	30.6
Hearing problems	27	21.8
Hand/finger injury	26	21
Ulcer	25	20.2
Skin problems	23	18.5
Wrist problems	21	16.9
Frequent headaches	18	14.5
Severe headaches	17	13.7
Nightmares	14	11.3
Joint problems	13	10.5
Shortness of breath upon exerting oneself	11	8.9
Repetitive Strain Injury (e.g., soreness, tingling or discomfort in the neck, arms, wrists, fingers or shoulders)	8	6.5
Frequent stomach pains	8	6.5
Frequent colds	6	4.8
Heart disease or condition	5	4
Respiratory or lung problems	5	4
Bumps and bruises	4	3.2
High blood pressure	3	2.4

Table 5.5 shows the correlations between the variables. Results show that burnout is positively associated with workload ($r = .435$, $p < .01$), time pressure ($r = .599$, $p < .01$), and work-family conflict ($r = .480$, $p < .01$). Results suggest that higher levels of workload, time

pressure, and work-family conflict are related to higher levels of burnout. This is in line with hypotheses 1a, 1b, and 1d.

Work strain is positively associated with workload ($r = .531$, $p < .01$), time pressure ($r = .433$, $p < .01$), mental demands ($r = .333$, $p < .01$), and work-family conflict ($r = .567$, $p < .01$). Results suggest that higher levels of workload, time pressure, mental demands, and work-family conflict are related to higher levels of work strain. This is consistent with hypothesis 2.

Work engagement is positively correlated with organisational support ($r = .252$, $p < .01$). This indicates that more organisational support is associated with higher levels of work engagement. The results support hypothesis 3. Job satisfaction is positively related to organisational support ($r = .340$, $p < .01$). Results suggest that higher levels of job satisfaction are associated with more organisational support. Hypothesis 4 is supported.

Multiple regression analysis was used to test if workload, time pressure, and work-family conflict significantly predicted respondents' levels of burnout. The results of the multiple regression model have been presented in Table 5.6. A significant regression equation was found ($F(3, 120) = 25.339$, $p < .001$). Our regression model explains 38.8% of the variance in burnout. Time pressure significantly predicted higher levels of burnout ($B = .378$, $SE = .076$, $t = .462$, $p < .001$). Workload and work-family conflict were not significant predictors of burnout (ps $> .05$).

A multiple regression was conducted to investigate if workload, time pressure, mental demands, and work-family conflict significantly predicted respondents' levels of work strain. The results of the multiple regression model have been presented in Table 5.7. The overall regression model was significant ($F(4, 119) = 29.284$, $p < .001$). Our regression model explains 49.6% of the variance in work strain. Workload significantly predicted higher levels of work strain ($B = .212$, $SE = .096$, $t = 2.200$, $p = .030$) as did time pressure ($B = .351$, SE

= .077, $t = 4.559$, $p < .001$) and mental demands ($B = .147$, $SE = .068$, $t = 2.160$, $p = .033$). Work-family conflict was not a significant predictor of work strain ($p > .05$).

A simple linear regression was conducted to test if organisational support significantly predicted work engagement. The results of the regression model have been presented in Table 5.8. The overall model was significant ($F(1, 122) = 8.246$, $p = .005$). The regression model explains 6.3% of the variance in work engagement. Organisational support significantly predicted higher levels of work engagement ($B = .163$, $SE = .057$, $t = 2.872$, $p = .005$).

A simple linear regression was conducted to test if organisational support significantly predicted job satisfaction. The results of the regression model have been presented in Table 5.8. The overall model was significant ($F(1, 122) = 15.989$, $p < .001$). The regression model explains 11.6% of the variance in job satisfaction. It was found that organisational support significantly predicted higher levels of job satisfaction ($B = .275$, $SE = .069$, $t = 3.999$, $p < .001$).

In summary, the results provide answers to the sub-questions/hypotheses of the questionnaire survey:

M1.1 What factors do the respondents feel stressed about in COVID-19 crisis translation?

The primary factors that the sample feels stressed about include prolonged periods of extremely intense concentration, time pressure (tight deadline), too short notice before assignments, long working hours, and not receiving sufficient background materials.

M2.1 What factors are the respondents satisfied with in COVID-19 crisis translation?

The factors that the sample is most satisfied with include continuous learning, intellectual challenge, degree of work responsibility, end-use of the translated text/interpretation, and exposure to a variety of subjects.

M3.1 What health complaints do the respondents have in COVID-19 crisis translation?

The most common health complaints present among the respondents include shoulder or neck problems, back problems, eye irritation, feel exhausted for no good reason, and difficulty falling asleep or staying asleep.

Hypothesis 1: (1a) Workload, (1b) time pressure, (1c) mental demands, and (1d) work-family conflict are positively associated with burnout in crisis translation during COVID-19.

The results partially support Hypothesis 1, showing that higher levels of (1a) workload, (1b) time pressure, and (1d) work-family conflict are related to higher levels of burnout. Moreover, it has been found that (1b) time pressure significantly predicted higher levels of burnout.

Hypothesis 2: (2a) Workload, (2b) time pressure, (2c) mental demands, and (2d) work-family conflict are positively associated with work strain in crisis translation during COVID-19.

Fully supporting Hypothesis 2, the results show that higher levels of (2a) workload, (2b) time pressure, (2c) mental demands, and (2d) work-family conflict are associated with higher levels of work strain. The regression model suggests that (2a) workload, (2b) time pressure, and (2c) mental demands significantly predicted higher levels of work strain.

Hypothesis 3: Work engagement is positively associated with organisational support in crisis translation during COVID-19.

The results support Hypothesis 3, indicating that more organisational support is associated with higher levels of work engagement. In addition, organisational support significantly predicted higher levels of work engagement.

Hypothesis 4: Job satisfaction is positively associated with organisational support in crisis translation during COVID-19.

Supporting Hypothesis 4, the results suggest that higher levels of job satisfaction are associated with more organisational support. Organisational support significantly predicted higher levels of job satisfaction.

The next section will present the method and results of the interview survey. Discussion of the questionnaire and interview surveys will be presented together in Chapter 6.

Table 5.5 Correlations between workload, time pressure, mental demands, work-family conflict, organisational support, burnout, work engagement, job satisfaction, and work strain

	Mean (*SD*)	Cronbach's α	1.	2.	3.	4.	5.	6.	7.	8.
1 workload	3.395 (.719)	.802	-							
2 time pressure	3.051 (.909)	.841	.512**	-						
3 mental demands	4.218 (.820)	.817	.248**	.254**	-					
4 work-family conflict	3.151 (1.362)	.931	.609**	.621**	.228*	-				
5 organisational support	3.97 (.965)	.932	.420**	.106	.008	-.403*	-			
6 burnout	2.65 (.744)	.912	.435**	.599**	.163	.480**	.046	-		
7 work engagement	3.69 (.625)	.764	.056	-.121	.068	.056	.252**	-.326**	-	
8 work strain	1.60 (.818)	.886	.531**	.633**	.333**	.567**	-.194	.639**	-.124	-
9 job satisfaction	2.08 (.780)	.825	-.241	.115	.024	-.191	.340**	-.038	.418**	-.138

*Note: * p < .05, ** p < .01*

Table 5.6 Regression analysis summary for variables predicting burnout

	B	ß	SE	t
workload	.133	.128	.095	1.389
time pressure	.378	.462*	.076	.462
work-family conflict	.063	.116	.055	1.144

*Note: * p < .001*

Table 5.7 Regression analysis summary for variables predicting work strain

	B	ß	SE	t
workload	.212	.186*	.096	2.200
time pressure	.351	.390**	.077	4.559
mental demands	.147	.147*	.068	2.160
work-family conflict	.107	.178	.055	1.935

*Note: * p < .05, ** p < .001*

Table 5.8 Regression analysis summary for organisational support predicting work engagement

	B	ß	SE	t
organisational support	.163	.252*	.057	2.872

*Note: * p < .05*

Table 5.9 Regression analysis summary for organisational support predicting job satisfaction

	B	ß	SE	t
organisational support	.275	.340*	.069	3.999

*Note: * p < .001*

5.2 Online Interviews

The questionnaire survey provides quantitative data, indicating the factors that the respondents felt stressful about (e.g., prolonged periods of extremely intense concentration and time pressure) and satisfied with (e.g., continuous learning, intellectual challenge and degree of work responsibility). It also shows the most prevalent health complaints, such as shoulder or neck problems, back problems, and eye irritation. Moreover, I have explored correlation and regression among the variables. The results suggest that job demands (e.g., time pressure and mental demands) are negatively associated with burnout and work strain while organisational support, as a job resource, is positively associated with wellbeing (i.e., work engagement) and job satisfaction. The online interviews provided the participants with an opportunity to elaborate on their experience as a(n) translator/interpreter during COVID-19. This allowed me to collect and analyse qualitative data to have an in-depth understanding of the job demands, resources, and the associated outcomes of crisis translation amid the pandemic.

As explained in section 3.4, the interview survey aims to answer the following questions:

M1.2 What are the job demands of crisis translation during COVID-19?

M2.2 What are the job and personal resources of crisis translation during COVID-19?

M3.2 What are the outcomes of the job demands and job resources in crisis translation during COVID-19?

5.2.1 Method. Participants and procedure. At the end of the questionnaire, participants were asked whether they would be interested in participating in a one-on-one online interview. If they choose to participate, they would be redirected to a separate URL that allowed them to submit their email addresses anonymously (i.e., independent of their questionnaire response). The researcher then emailed those who were willing to participate in

the interview to schedule an online session and together with the participant information sheet and the consent form attached.

25 interviews were conducted on two platforms, Zoom and WeChat. The former is a videotelephony proprietary software program; the latter is a Chinese multi-purpose messaging social media that provides hold-to-talk voice messaging and video/voice calls. 22 interviews were conducted over Zoom, apart from three participants (i.e., Participants 8, 16, and 21) who used WeChat as two of them (i.e., Participants 16 and 21) had no access to Zoom, and Participant 8 did not have time to do the online interview but requested the question list and sent back the answers through voice messages via WeChat. The sessions carried out over Zoom were recorded and downloaded afterwards for transcribing and analysis. The researcher used a Sony ICD-UX543F digital voice recorder to record the three interviews conducted via WeChat. Due to the fact that all the interviewees were Chinese native speakers, the interviews were carried out in Mandarin.

Although it has been clearly stated in the Participant Information Sheet and reemphasised by the researcher at the end of each interview that the participants are permitted to review their recording and transcript, none of them requested to do so. Each interview was transcribed by the researcher manually without the aid of any audio transcription software due to the limited availability of reliable and affordable Chinese transcription software at the time. In addition, manually transcribing, despite being time-consuming, allowed the researcher to be more familiar with the data (Riessman, 1993) and develop a thorough understanding of the data (Braun & Clarke, 2006). Some contextual information, such as repetitions and fillers, has been removed to improve transcript readability. The transcripts were anonymised once they were completed.

The design of the interviews is semi-structured, which ensures a measure of the consistency of treatment across a set of interviews, allowing participants' answers to be

compared afterwards regardless of the participants and external factors being variable

(Drever, 1995). The online interview consisted of 20 questions regarding translators'/

interpreters' work stress during COVID-19 and took approximately 30 minutes to complete

on average. The questions covered six aspects, including background and context,

occupational stress, job demands, job resources, outcomes (including wellbeing at work), and

debriefing. Table 5.10 illustrates the interview questions and their underlying construct they

are aimed at.

    The interviews provided additional support for the findings from the quantitative

section and also allowed the participants to tell their stories by using their own words. We

asked subsequent probing and clarification questions during each question period to allow the

participants to clarify unclear issues, meaning, etc. Thus, we could have an in-depth

understanding of the root of work stress in crisis translation to propose a set of tailored

guidelines for crisis translation training.

Table 5.10 Interview questions and what underlying construct they are aimed at

No.	Wording of the question	What the question attempts to investigate
1	What were your main tasks when working as a(n) translator/interpreter since the start of 2020?	Background and general information
2	Working as a(n) translator/interpreter in COVID-19, to what extent did you experience stress at work?	Work stress
3	Were there any particular jobs or working conditions that you think were stressful? - If so, what are they, and why do you think they were stressful?	Job demands

4	What aspects of doing translation/interpreting in COVID-19 did you find challenging?
	  - How did the challenge affect your motivation or a feeling of fatigue?
		Job demands
		  - hindrance or challenge stressor

5	How did you feel during COVID-19 (e.g., fear, anxiety, changes in sleep or eating patterns, difficulty sleeping or concentrating, etc.)?	Job demands - emotional demands

6	Did you face any ethical issues when working (for example: translating/interpreting a text containing information that may not be acceptable to the religion or culture of the target audience)?
	  - What were the issues?
		Job demands
		  - ethical issues

	- What did you find challenging?	
	- How did you deal with them?	
7	How did you deal with the stressful situations you just explained?	Job resources - personal resources
8	How did you deal with the (negative) feelings that you experienced?	Job resources - personal resources
9	What aspects of the work did you find rewarding?	Job resources
10	How confident did you feel about dealing with challenges in your translation/interpreting work in Covid-19?	Job resources - personal resource: self-efficacy
11	Did your colleagues/manager help you to better deal with stressful situations? If so, how?	Job resources - peer support
12	Did you use any translation tools? - What things about them did you enjoy? - What did you find frustrating or negative? - What other tools did you wish you had access to?	Job resources - translation tools
13	What did you do to prevent stress/stressful situations from happening again in the future?	Job resources - personal resources
14	A number of things can be done to help people manage stress at work. What do you think you could have done differently to manage stress at your translation/interpreting work in COVID-19? What do you think your team could have done about it?	Job resources - personal and organisational resources
15	What did you like about your work in COVID-19?	Outcomes - wellbeing at work
16	Would you consider your translation/interpreting work in COVID-19 successful? - Why do you think it's been successful? Or not successful?	Outcomes
17	During your work, did you get the results that you wanted? Why or why not?	Outcomes
18	If this (crisis translation work) experience has affected your routine work and how?	Outcomes
19	In general, how did you feel about working as a translator/interpreter in COVID-19?	Closing
20	What are the differences between translating/interpreting for COVID-19 and your routine translating/interpreting work?	Closing

Data analysis. The researcher followed Braun and Clarke's (2006) seven-step

thematic analysis workflow to analyse the interview data in a rigorous and systematic way.

The first phase involved familiarising myself with the depth and breadth of the data by

reading the transcripts multiple times and generating initial ideas that represented features of interest to the study. The notes and ideas were prepared for subsequent coding.

The second phase entailed creating codes in a systematic fashion. In the present study, the themes are both data- and theory-driven (Braun & Clarke, 2006), which means the themes depended on the data. Still, they were also driven by the theoretical interest in the JD-R model and crisis translation and approached based on specific questions. The combination of inductive and theoretical thematic analysis allowed a rich description of the data without losing the details of certain aspects (Braun & Clarke, 2006). Based on the nature of the study, a range of coding methods have been integrated and employed to create a richer perspective on the data, including grammatical, elemental, affective, and exploratory methods (Saldaña, 2016). Each coding method covers different types of codes. The codes that have been used in this study include attribute coding and sub coding in the grammatical method, descriptive, in vivo, and concept coding in the element method, value coding in the affective method, and holistic and provisional coding in the exploratory method (Saldaña, 2016).

The second phase produced 30 codes that came in six types: provisional codes, descriptive codes, attribute codes, concept codes, value codes, and in vivo codes. Provisional codes, a.k.a. a priori codes, are predetermined codes prior to data analysis based on the research questions (Gibson & Brown, 2009); descriptive codes, also called "topic codes", summarise "the basic topic of a passage" (Saldaña, 2016, p. 102); attribute codes refer to basic descriptive information of the data, such as the field research setting, participant demographic information, and other variables of interest (Saldaña, 2016); concept codes, or analytic code, represent "meso or macro levels of meaning" of the data (Saldaña, 2016, p. 119); value codes entail participants' values, attitudes, and beliefs (Saldaña, 2016); in vivo codes refer to the actual words used by a participant (Gibson & Brown, 2009), "the terms used by [participants] themselves" (Strauss, 1987, p.33). The coding was facilitated by QSR

International's NVivo software. This software is a powerful and efficient tool that makes

qualitative data analysis reliable and transparent (Hoover & Koerber, 2011).

The third and fourth phases in the Braun and Clarke (2006) guidelines focus on the

more general level of themes. The third phase involved organising the codes into larger

groups to produce overarching themes and sub-themes. These themes were then further

combined, refined, separated or discarded in the fourth phase to ensure they were coherent

and accurately represented the entire data set. Then, after the thematic map of the data was

satisfactory, in the fifth phase, the themes were further refined to make them more coherent

and consistent, and clear definitions of each theme were generated. From the second phase to

the fifth phase, the number of codes increased from 30 to 46 in total. Figure 5.1 illustrates the

final thematic map developed from the second to the fifth phases. A codebook was created to

provide all the coding definitions developed for this project (see Appendix C). The final

phase was to produce a report of the analysis which will be demonstrated in detail in the

discussion section.

orange = new code   blue = repositioned code

Phase 2	Phase 5	
1. Task description	1. Task description	22. Self-efficacy
2. Translation tasks	2. Translation tasks	23. Outcomes
3. Interpreting tasks	3. Interpreting tasks	24. Success factors
4. Language pair	4. Language pair	25. Positive aspects
5. Duration	5. Duration	33. Feedback
6. Work-related stress	6. Work-related stress	26. Negative aspects
7. Job demands	39. Professional work stress	30. Emotional outcomes
8. Time pressure	40. Student work stress	31. Physical outcomes
9. Workload	41. Bilingual work stress	32. Lessons learned
42. Terminology	7. Job demands	36. Impacts on daily routine
10. Emotional demands	8. Time pressure	37. Feelings and thoughts
11. Hindrance stressors	9. Workload	38. Differences from routine work
12. Challenge stressors	27. Unfamiliar with the content	43. Psychological needs
13. Ethical issues	42. Terminology	44. Autonomy
14. Technical issues	28. Project management	45. Competence
15. Job resources	29. Lack of training	46. Relatedness
16. Personal resources	10. Emotional demands	
17. Organisational support	11. Hindrance stressors	
18. Translation tools	12. Challenge stressors	
19. Translation tools – advantages	13. Ethical issues	
20. Translation tools – disadvantages	14. Technical issues	
21. Other tools	35. Uncertainties	
22. Self-efficacy	15. Job resources	
23. Outcomes	16. Personal resources	
30. Emotional outcomes	17. Organisational support	
31. Physical outcomes	18. Translation tools	
24. Success factors	19. Translation tools – advantages	
25. Positive aspects	20. Translation tools –	
26. Negative aspects	disadvantages	
33. Feedback	21. Other tools	
	34. Improvements	

Figure 5.1 thematic map from phase 2 to phase 5

This figure demonstrates the initial and final thematic maps.

5.2.2 Results

5.2.2.1 The role and profile of the translators/interpreters

Crisis Translators in the present project (i.e., anyone who has done COVID-19 related translation/interpreting work as discussed in 4.3.2) can be categorised into two groups based on the employment status, volunteer translators/interpreters and paid professional translators/interpreters. Volunteers include bilinguals/multilinguals, student translators/interpreters, and professional linguists, whereas paid professional translators/interpreters are only limited to professional linguists who are highly skilled and experienced.

Table 5.11 illustrates the role and profile of the participants in this project. Among the 25 interviewees, 14 were volunteer translators/interpreters, 10 were paid professionals, and one worked full-time as a journalist and studied part-time, major in Translation Studies at the time when she did COVID-19 related translation and interpreting. The volunteer translators/interpreters consisted of seven students, five bilinguals/multilinguals, and two professionals. Apart from the journalist who was based in New Zealand (P10-S), the professional translator who was based in the United States as a freelancer (P19-P), and the medical student who worked as a volunteer translator in the UK (P24-B), all the participants were in China at the time when they undertook the role of crisis translator. All participants were Chinese nationals.

Regarding the role the participants played in crisis translation during COVID-19, the majority of the volunteers worked as translators rather than interpreters. The professionals who worked in a volunteer team also took additional responsibilities, including project management and/or interpreting (e.g., P3-P and P17-P). In contrast, most of the paid professionals who did pandemic-related work were conference interpreters. The dominant

language pair was Chinese-English. It is interesting to note that the less common language pairs such as Chinese-Spanish, Chinese-French, and Chinese-Japanese were mostly served by volunteer bilinguals (e.g., P11-B, P16-B, P21-B, and P25-S).

In summary, the crisis translators in the present study were mainly staffed by volunteers (56%). Among the volunteers, 50% were university students, and all of them undertook written tasks apart from a small amount of basic interpreting work. In addition, professional linguists' job roles were more diverse than the student and the bilingual volunteers, which included project management, conference and consecutive interpreting, and translation.

Table 5.11 Role and profile of the crisis translators during COVID-19

No.	Code	Participant	Role	Language pair
1	P1-P	Professional (paid)	Project manager, translator, and consecutive and simultaneous interpreter	Chinese-English
2	P2-B	Bilingual (volunteer)	Translator	Chinese-English
3	P3-P	Professional (volunteer)	Project manager and translator	Chinese-English
4	P4-S	Student (volunteer)	Proof-reader	Chinese-English
5	P5-P	Professional (paid)	Self-employed, project manager, conference interpreter, and translator	Chinese-English
6	P6-S	Student (volunteer)	Translator	Chinese-Arabic
7	P7-S	Student (volunteer)	Translator	Chinese-English
8	P8-P	Professional (paid)	Conference interpreter	Chinese-English
9	P9-P	Professional (paid)	Conference interpreter	Chinese-English
10	P10-S	Student (paid)	Journalist for an overseas Chinese-language media company. English to Chinese translation was part of her job.	Chinese-English
11	P11-B	Bilingual (volunteer)	Translator	Chinese-Spanish
12	P12-P	Professional (paid)	Conference interpreter	Chinese-English
13	P13-P	Professional (paid)	Conference interpreter	Chinese-English
14	P14-S	Student (volunteer)	Translator	Chinese-English
15	P15-P	Professional (paid)	Consecutive interpreter	Chinese-English
16	P16-B	Bilingual (volunteer)	Translator	Chinese-French
17	P17-P	Professional (volunteer)	Project manager, translator and consecutive interpreter	Chinese-English
18	P18-P	Professional (paid)	Liaison interpreter	Chinese-English
19	P19-P	Professional (paid)	Translator	Chinese-English
20	P20-P	Professional (paid)	Conference interpreter	Chinese-English
21	P21-B	Bilingual (volunteer)	Translator	Chinese-Spanish
22	P22-S	Student (volunteer)	Translator	Chinese-English
23	P23-S	Student (volunteer)	Translator and liaison interpreter	Chinese-English
24	P24-B	Bilingual (volunteer)	Translator	Chinese-English

| 25 | P25-S | Student (volunteer) | Translator and liaison interpreter | Chinese-Japanese-Korean |

5.2.2.2 The products of translation/interpreting

Depending on the nature and the content of the translation/interpreting work, the duration of crisis translation work ranged from merely a couple of days up to six months. Some Crisis Translators started working as early as mid-January 2020, which was the beginning of the response phase in Wuhan.

The most often mentioned topic that required linguistic mediation by the crisis translators is manuals and instructions for medical supplies and equipment. The outbreak of the disease in Wuhan, which was the first city that was severely hit by the pandemic, led to a surge in demand for medical supplies and equipment. Overseas Chinese started to donate medical supplies to tackle the shortage, such as face masks, protective coveralls, and disinfectants (Yang, 2020). As a result, people spontaneously organised translation volunteer teams to facilitate the international donation and procurement of medical supplies in dire need to make sure the standards of the foreign medical supplies were in line with the Chinese quality standards (Zhang & Wu, 2020). For example, P22-S explained:

> In the beginning, it was because the pandemic had just begun, and our domestic supplies were not enough. People, mainly some overseas Chinese, bought some protective supplies and then sent them back or personally brought them back to China. So, they checked with us if the stuff could be used for medical purposes or if it could come in handy. Therefore, the translation group was established. There were healthcare workers in the group. We translated things into Chinese and showed it to the health workers. They decided whether it could be used on the front line or not.
> (P22-S transcription lines 7–11)

After the pandemic was relatively under control and China's manufacturing sector quickly resumed production and did not need to rely on overseas donations, the translation needs shifted to sharing China's lessons and experiences in fighting against the pandemic with the rest of the world. In addition, traditional Chinese medicine (TCM) was one of the primary topics regarding translation from Chinese into foreign languages. "What followed was that as our translation team's reputation became higher and higher, we received other tasks. For example, TCM was made into an English version and spread abroad," P22-S said (lines 11–12). Furthermore, P11-B explained who were the end-users of the manual of prevention based on TCM: "[The primary users of the manual were] the local people in Spain. Also, it was organised by the local Chinese in Spain who collected the materials. Then, it was distributed to all walks of life in Spain through their organisation" (lines 49–51).

In addition to a wide range of topics, the crisis translators also faced the challenge of various formats of the source texts, including Word, PDF, and more piecemeal documents such as images. As P22-S put it: "There were PDF documents, like an entire manual. There were also pictures of instructions written on the product label that someone photographed in the mall or pharmacy" (lines 26–27).

Compared to the informal and piecemeal translation tasks, the topics of interpreting are more formal, specialised and demanding. As discussed in the previous section, 60% of the paid professionals were conference interpreters. They interpreted medical topics such as reagents for nucleic acid-based testing, principles of PCR (polymerase chain reaction), and immunological mechanisms of vaccination. Table 5.12 shows the topics that the participants mentioned in the interviews as requiring translation/interpreting in the COVID-19 pandemic.

In conclusion, the volunteer translators primarily engaged in the tasks initiated by non-profit groups, including public service entities. In most cases, the purpose of the translation was to facilitate overseas donations of medical supplies for those in urgent need

back home. Based on the interviews, one of the main features of those tasks was informal and

piecemeal. In contrast, the paid professional linguists mostly did conference interpreting.

Their clients included governments, businesses, public services, etc. Accordingly, the topics

were more diversified and specialised.

Table 5.12 List of topics requiring translation/interpreting in the COVID-19 pandemic
mentioned by the interview participants

Topics requiring linguistic mediation	Participant identifier number(s)
Translation:	
Manuals and instructions for medical supplies and equipment	3, 6, 7, 11, 16, 17, 21, 22, 23, 25
COVID-19 advice for the public	1, 18, 25
Prevention and treatment based on TCM	11, 21, 22
Overseas medical standards	3, 4
Mental health care	1, 17
Official notice and announcement	1, 23
Inspiring stories in difficult times	1, 23
COVID-19 prevention and control guidelines	1, 25
COVID-19 symptoms and prevention	19, 23
Standards for imported face masks	2
How to use a face mask safely	5
Emails on procurement of medical equipment	7
News reports	10
Journal articles on COVID-19	14
Articles on the Centres for Disease Control and Prevention (CDC) website	14
Medical equipment supplier contracts	16
Overseas and domestic expert interviews	16
Introduction to philanthropic foundations	22
Information for people in hotel quarantine	23
National Health Service (NHS) Inpatient hospital admission notification	24
Guidelines on the treatment and management of patients with COVID-19	24
Popular science news and stories	25
Interpreting (*specific mode mentioned other than conference interpreting):	
Medical conferences on the pandemic	8, 9, 15
COVID-19 media conferences	1, 5
COVID-19 related information mentioned at corporate meetings/conferences	12, 13
Foreigners in the local community (*liaison interpreting)	18, 25
Conferences on rescuing Wuhan and production set-up	5
Conferences on COVID-19 vaccines and testing	5
Media reports (*sight translation)	10

Psychological courses on mindfulness (*consecutive interpreting)	17
Focus group interview on medicines and supplements	18
Procurement of medical equipment (*telephone interpreting)	22
Individual needs during hotel quarantine (*online liaison interpreting)	23

5.2.2.3 Crisis translation and interpreting examined within the job demands-resources (JD-R) model

As one of the theoretical frameworks in this thesis, the JD-R model (Figure 3.1) will be applied to analysing the interview data to answer the research questions. Factors that impacted crisis translators' and interpreters' work stress will be discussed from four aspects: job demands, job resources, personal resources, and the associated outcomes. Under each category, the themes are organised and reported from the highest frequencies to the lowest. Admittedly, there is considerable debate over counting and reporting numbers in thematic analysis in qualitative research (e.g., Braun & Clarke, 2006; Creswell, 2012) and researchers recommend the use of frequency labels, such as "general" referring to "all or all but one of the cases", "typical" referring to "more than half of the cases up to the cut-off for general", and "variant" referring to "at least two cases up to the cut-off for typical", etc. (Hill et al., 2005, p. 201). However, after applying the frequency labels, I found that the presentation of the results is rather disorganised given the relatively large number of the themes reported under each category. Thus, the purpose of the use of frequencies/percentages in the reporting of the results is to present the data in a more organised manner visually rather than emphasising the statistical magnitude and hierarchy of each theme. I agree that all codes should be given equal emphasis in thematic analysis (Creswell, 2012).

Job demands of COVID-19 crisis translation. Similar to the questionnaire results, the common job demands mentioned by the participants include emotional demands and time pressure. Regardless of educational background and work experience in translation and

interpreting, these two job demands have caused work stress to a certain extent. In addition, the respondents also pointed out other job demands in crisis translation that caused stress, including unfamiliarity with the content, ethical issues, technical issues, a heavy workload, uncertainties, and trust issues (Figure 5.2).
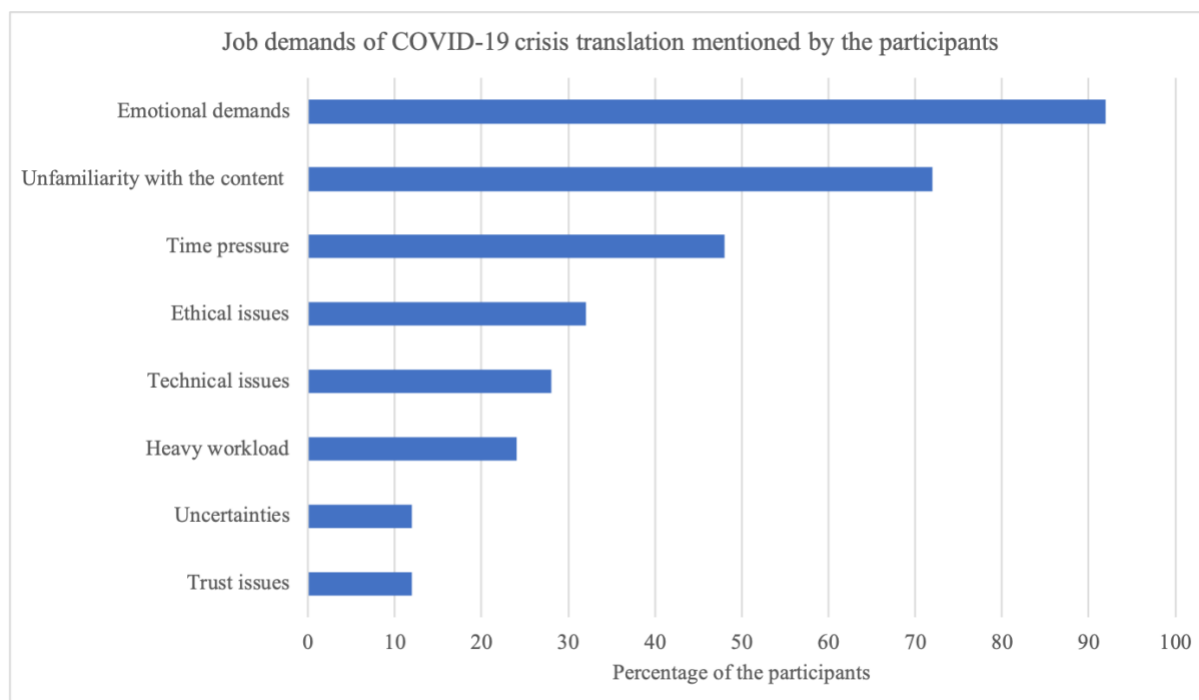
Figure 5.2 Job demands of COVID-19 crisis translation

This figure illustrates the job demands of crisis translation during the COVID-19 pandemic mentioned by the participants.

Emotional demands. The results indicated that 92% (n=23) of the participants mentioned the emotional demands. The most common negative mood was anxiety. The emotional aspects of crisis translation are threefold, the psychological effects of the pandemic on each individual, the impact on their jobs and industries, and the extra burden of dealing with pandemic related information as a(n) translator/interpreter. P10-S talked about her emotions and sources of work stress as a journalist for an overseas Chinese-language media company with translation and interpreting as part of the job functions:

But there are other aspects of pressure that I have on myself. For example, the pandemic puts pressure on everyone, and then we are dealing with the news every day. An ordinary person may feel that they don't want to watch the news these two days, just do whatever they want. But we can't, because this is part of our work. Then we have to watch the developments of the pandemic every day, watch some stories. There are some psychological demands. I remember that at the beginning of the pandemic, … what happened in Wuhan, like how many people lined up to go to the hospital, and then how many people died. When I talked about this news, including the report on Dr Li Wenliang, I felt that I was almost depressed. That is to say, those things have already brought me a lot of pressure, but because of my job, I must be exposed to such content. So, I also feel stressed in this respect. In addition, sometimes I feel that because I work in an organisation, in a media company, there is already a lot of pressure due to such work content. Yet as the pandemic has affected the company's income, people in the company has become fewer and fewer, but the workload is getting much heavier. Thus, there is greater pressure from the company side. (lines 21–33)

Unfamiliarity with the content. The second job demand of crisis translation during the pandemic was unfamiliarity with the content; 72% (n=18) of the participants felt unfamiliar with the content related to the pandemic and healthcare, such as special terms and medical equipment standards and regulations which made the translation/interpreting work challenging. Not only did the student translators and bilinguals struggle with medical terminology, but the professionals also found it challenging. For instance, P1-P stated that "In the beginning, we were unfamiliar with the content because everyone knew little about this aspect in general. It involved some medical terms, especially the ones we had no way of understanding. This is one aspect of work stress" (lines 30–32).

The importance of professional knowledge is also backed up by the account of P24-B. P24-B, as a medical practitioner, expressed doubts about the quality of clinical practice guidelines that were translated from Chinese into Arabic as he believed professional knowledge played a crucial role in medical translation and translators without a medical background may not be competent:

> I also saw the Arabic translation of the Chinese clinical guide translated by the Department of Foreign Languages of Peking University, the seventh edition, as far as I can recall. However, I don't know if the translated version can be used. (Researcher: Why do you think it can't be used?) From the perspective of a doctor, we always think that we cannot understand what was done by people who only specialize in translation. (Researcher: Is it a matter of professional knowledge?) Yes. (lines 205–211)

> *Time pressure*. Time pressure, as a persistent work stressor in routine work, became more stressful in the context of the COVID-19 crisis; 48% (n=12) of the participants considered time pressure as one of their primary work stressors. For example, P7-S stated that:

> My work stress mainly came from tight deadlines. For example, we had to complete an English document of three to four or four to five pages within 30 minutes or an hour. So, it was exhausting doing the translation, and I felt stressed. (lines 16–19)

> *Ethical issues*. As the translation and interpreting during the COVID-19 crisis are mostly about objective medical topics with little room for subjective judgement, there are not many ethical issues regarding culturally and linguistically diverse groups as discussed in previous literature on community translation and interpreting (e.g., O'Hagan, 2011; Shackleton, 2017; O'Brien et al., 2019; Tryuk, 2016). Nevertheless, there were two topics

regarding ethical issues reported by 32% (n=8) of the respondents; one was translating TCM

and the other was the political aspects in the translation and interpreting process.

The results suggested that among the 32% respondents, 20% of the participants were

faced with the ethical dilemma of translating TCM due to the fact that some of the concepts

and theories of Chinese medicine are controversial, and the participants did not completely

agree with what they were asked to translate. Despite holding different opinions about TCM,

some (e.g., P11-B) did their best to faithfully translate it while others (e.g., P21-B) refused to

undertake the task. Interestingly, P24-B, a medical practitioner selectively translated the

source text and omitted the TCM part not because of his own preference for or views on

TCM but from the practical perspective:

> I didn't translate the content of TCM for them [the hospital] at all. They didn't even
>
> have that herbal medicine…Because I wanted to provide them with a feasible solution
>
> in a short time, so, you couldn't waste time on communication. (Researcher: So, as it
>
> was not feasible, you translated the most important and useful information based on
>
> your expertise, right?) Yes. (lines 71–77)

Regarding the political aspects, two participants, P5-P and P25-S, faced the problem

of different interpretations on the political status of Taiwan and Hong Kong internationally

and domestically. For example, P5-P mentioned:

> When we did interpreting for New York University Shanghai, a speaker talked about
>
> the turmoil in Hong Kong. Fortunately, he just touched on it. So, we interpreted it.
>
> Yet, as for Hong Kong and Taiwan, we would add one more word, "region", after it,
>
> so we don't interpret it as a country. Just this, nothing else (lines 68–70).

Technical issues. The biggest challenge for the professionals who did online

interpreting was technical issues. Seven professionals, 28% of the total participants, reported

that they felt stressed about technical problems, such as poor sound quality, Zoom lag, and

slow internet as such issues were often out of their control and would negatively affect their performance. For example, P9-P said:

> I am definitely 100% confident in my own proficiency. However, as for some online issues that are out of my control, such as Zoom lag and not getting complete information, which happen very often, I still can overcome them … However, being able to overcome does not mean that I feel happy or comfortable with it. (lines 100–102)

Heavy workload. 24% (n= 6) of the participants, including paid professionals and volunteers, reported a heavy workload as a source of work stress when they were doing pandemic related translation. Moreover, the crisis translators sometimes had to stay up late to meet the deadlines. For example, P2-B said: "The second time I got a Chinese-English translation…I started at six or seven in the evening and finished it at three or four in the morning" (lines 17–18).

Uncertainties. In addition to some predictable stressors such as time pressure and heavy workload, 12% (n=3) of the participants were also confronting with various uncertainties. One of the issues of managing an ad hoc volunteer group is maintaining the members' commitment and engagement. P3-P indicated a lack of volunteer commitment as one of the uncertain situations. As for the professional interpreters, the COVID-19 crisis has also profoundly impacted the language market and their routine work:

> In addition, the pandemic has brought many changes and uncertainties. This year, the new difference in our conference interpreting market is that interpreting for conferences is scheduled ad hoc, which shortens the time for interpreters to prepare in advance and occupies my daily routine. Second, the duration of the conference has been shortened to one hour or one and a half hours, and it is rare for more than two hours. However, old clients know that even for a one-hour online conference, we also

spend the same time reading the materials; we also need to test the sound in advance

and join the online meeting in advance (P8-P, lines 21–25).

Trust issues. The results also showed that 12% (n=3) of the participants reported trust

issues in the volunteer recruitment process when credentials and legitimacy of some

translation organisers were questioned. It was difficult for volunteers to spot the legitimate

ones in such emergency situations due to the fact that most of the volunteer groups were

unofficially organised within a very short period of time. This caused quarrels and doubts

within the team. The consequence of the trust issues of organisers' trustworthiness was that

"those who didn't believe it left the group, and those who did continued to stay", said P4-S

(line 35).

In conclusion, the most frequent reported job demands that crisis translators were

confronted with during the COVID-19 pandemic was emotional demands (92%), followed by

unfamiliarity with the content (72%), time pressure (48%), ethical issues (32%), a heavy

workload (24%), uncertainties (12%), and trust issues (12%). As shown in the initial study

and previous literature, tight deadlines and heavy workload are common stressors in routine

work as well, whereas other factors are crisis specific demands that require physical and

psychological efforts and skills. The next section will examine the job and personal resources

that the participants tapped into to address or reduce the job demands and the associated costs

in crisis translation.

Job resources of COVID-19 crisis translation. In contrast to a wide range of job

demands elaborated on by the participants, the participants' accounts showed that

organisational resources for their translation/interpreting work in the crisis were rather

limited. Thus, their job resources primarily included peer support and translation tools that

they used (Figure 5.3).
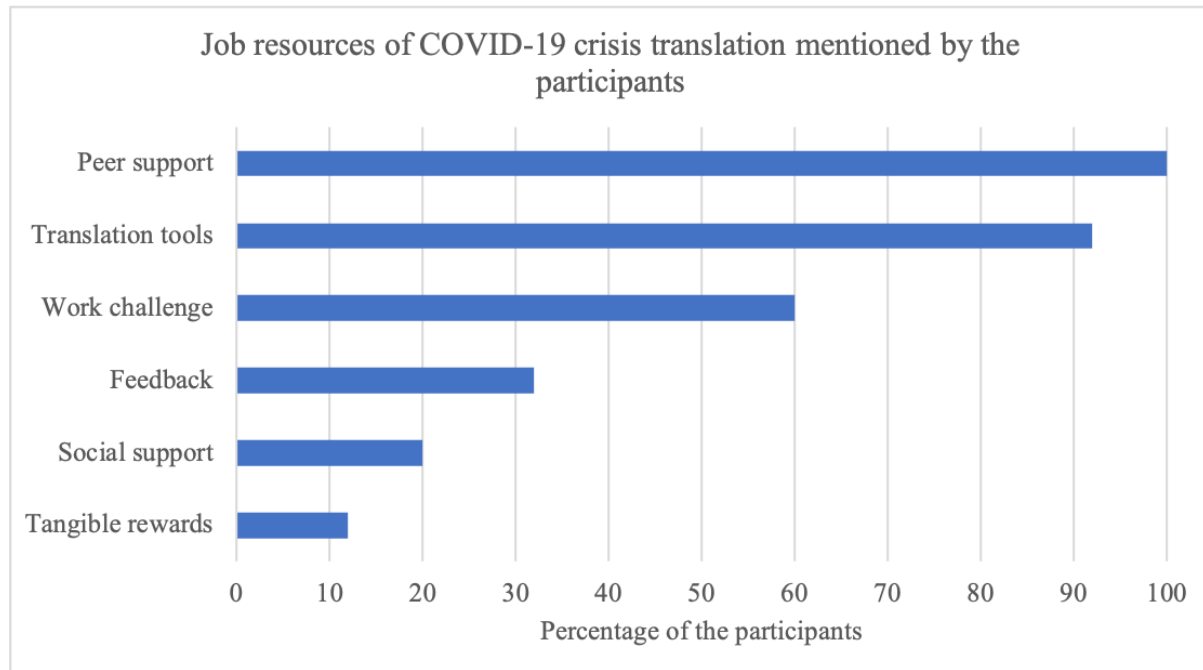
Figure 5.3 Job resources of COVID-19 crisis translation

This figure illustrates the job resources of crisis translation during the COVID-19 pandemic mentioned by the participants.

Peer support. All the participants mentioned peer support as one of the most helpful

resources that improved their efficiency. The participants pointed out that effective

communication is the cornerstone of peer support that enabled the volunteer groups to

operate smoothly. Firstly, timely communication facilitates teamwork so that team members

can share the workload when it is too heavy for a single person and resolve each other's

difficulties in time. As P7-S said: "When I was emotional or anxious, they would help me

with some tasks that I was doing, helping me to complete them. Moreover, we were divided

into a group of four and checked one another's work to avoid mistakes" (lines 68–70).

Second, peer support also helped the participants channel emotions. For example, P1-

P stated that, "I would chat more with my colleagues. Everyone played down this matter in a

humorous way. We wouldn't always emphasise it. Also, when we had any thoughts and

feelings, we would share and communicate within the team" (lines 64–65).

Another avenue of peer support was to check in on one another on a regular basis to seek or provide help in time and to organise online group activities. For example, P17-P mentioned, "I remember one time when we did mindfulness exercises…it helped us a lot" (lines 109–110).

Translation tools. The second most mentioned job resource is translation tools. The results indicated that 92% (n=23) of the participants used machine translation to assist with their tasks while only two participants, P24-B and P25-S, hardly ever used any translation tools apart from using search engines to check background information. Depending on the content and the language pair of the texts, the participants used various translation tools, but most of them were the mainstream online translation tools and dictionaries, such as Google Translate, Baidu Translate, DeepL Translator, Sogou Translate, and Youdao Dictionary. With the rapid development of machine translation in China, some emerging translation tools, including SmartTrans, YiCAT, and Foxit Translate, have also come to prominence and been utilised by the participants. For example, P20-P mentioned that Foxit Translate was a very good one as it could translate text embedded in images.

However, the mainstream translation tools sometimes do not apply to languages other than English, such as Spanish and Arabic. The participants who worked on those less common language pairs for Chinese translators/interpreters preferred other translation and language tools, such as Eshelper, a Spanish online dictionary (P21-B). P6-S used electronic dictionaries and traditional paper dictionaries for Chinese-Arabic translation.

Readily available often free translation tools have benefitted the participants in multiple ways. Based on the participants' accounts, first, with the help of machine translation, one of the most significant advantages is deemed to be increasing productivity. The participants pointed out that it cut down on the workload to some extent, reducing manual, repetitive work, including typing the same words over and over again. Moreover, the

participants also endorsed the accurate and consistent translation of words and phrases. For instance, P9-P acknowledged Sogou Translation's speedy and accurate output. P15-P commented that Google Translate was helpful in translating medical terminology.

However, despite its low cost and convivence, the participants' accounts showed that translation tools are far from making the output flawless without post-editing. The participants complained about various problems of machine translation and generally used it as a supplement instead of a replacement. For example, translation errors such as grammar and syntax, lexicon, coherence, and fluency issues were found in machine-translation output. P15-P was dissatisfied with the fluency of machine translation. Furthermore, machine translation is unable to deal with culture-specific content, such as specific concepts in TCM (P11-B), the translation of New Zealand political parties and Māori influence on New Zealand English (P10-S), and Arabic dialect translation (P6-S).

Ample literature confirms translation tools (machine translation) are currently far from making the output flawless without post-editing (e.g., Balling & Carl, 2014; Koponen, 2016; Vieira, 2019). However, all the participants who used translation tools agreed that such tools facilitated their work, and the advantages outweighed the disadvantages. Thus, translation tools are categorised as a job resource rather than a demand.

Work challenge. Although all the participants were more or less stressed when doing crisis translation, the stressors had different effects on them. The results indicated that 60% (n=15) of the participants perceived challenges in which they found motivation also as the stressors. Three participants, P1-P, P3-P, and P14-S, were motivated by work challenge at the beginning but became fatigued as the project progressed. Those who had sustained motivation (e.g., P2-B, P17-P, and P19-P) were passionate about the translation/interpreting work as they believed doing crisis translation was a worthwhile calling.

Feedback. In addition to peer support and translation tools, 32% (n=8) of the participants received feedback and considered it as a job resource. Feedback on their output from their supervisors, clients, and end users enabled them to know whether their work had been put into practice, how it had been utilized, and whom they had helped. In this way, they felt encouraged and motivated. For example, P1-P stated, "Later, we received some informal feedback from the foreigners … so that we would have the motivation to continue doing the translation" (lines 92–94).

Social support. The results indicated that 20% (n=5) of the participants reported social support from friends, colleagues, and supervisors as a job resource. The participants' social ties played a critical role in reducing the job demands and solving translation/interpreting difficulties. They sought help from their friends, colleagues, or supervisors for suggestions and guidance on translation/interpreting issues, such as the applicability of the target text to the end-users and the comprehension of specific words and dialects. For example, as P1-P's expertise was in formal, academic translation and interpreting and the team had little knowledge of community and crisis translation which requires cultural adaptation of translated content and tailoring the content to the end users' needs (O'Brien et al., 2018), they consulted their foreign friends who are native speakers of the target languages about their translation output and changed the translation strategies accordingly. P6-S received a great deal of support from his social connections, including the schoolmates, supervisors, and Arabic friends in dealing with the comprehension and translation of Arabic dialects.

The above examples illustrate that the crisis translators' social connections provided practical support and professional guidance that assisted the translators with language, linguistic, and cultural challenges, reducing job demands. Thus, such a supportive social network, as an informational resource, directly helped the translators solve problems. In addition to solving work challenges, two participants, P9-P and P17-P, spoke about emotional

support that they obtained from the social connections that helped them overcome stressful situations. P9-P received support through the Bahá'í Faith and religious activities and P17-P was a member of a psychological coaching group that provided mind-body therapies and mindfulness exercises.

In summary, the above examples given by the interviewees suggest that their social network has two functions, informational and emotional support. The former directly helped them address job demands and improve the translation output; the latter facilitated their mental wellbeing from religious and psychological perspectives.

Tangible rewards. In terms of tangible support, 12% (n=3) of the participants received official acknowledgement or small monetary incentives, which made them feel happy and motivated. P21-B was very glad when they were granted an official reward: "Later, a charity organisation in Beijing noted down the volunteer translators and sent a small medal over to everyone. I was also very happy to receive it" (lines 129–130).

In conclusion, although volunteer translation teams had very limited organisational resources, all of the participants considered peer support as a job resource. It not only ensured work efficiency but also provided opportunities for the exchange of thoughts and feelings when any of the group member had difficulties or experience negative emotional symptoms. The approaches taken by the participants included reasonably dividing the workload and virtual group activities. Both means were conducive to teamwork and team bonding. Moreover, translation tools, work challenge, feedback, social support were also functional in achieving work goals. Additionally, little koha or a certain form of official recognition was an effective approach to increasing positive emotions and enhancing volunteer engagement.

Personal resources in COVID-19 crisis translation. Given that the resources provided by the translation groups were relatively inadequate, the participants primarily relied on their personal resources to cope with work stress and emotional issues that arose

from pandemic related translation/interpreting work. The personal resources helped reduce

work stress by providing the individuals with avenues to cope with the associated emotional

issues. The personal resources are presented in Figure 5.4.
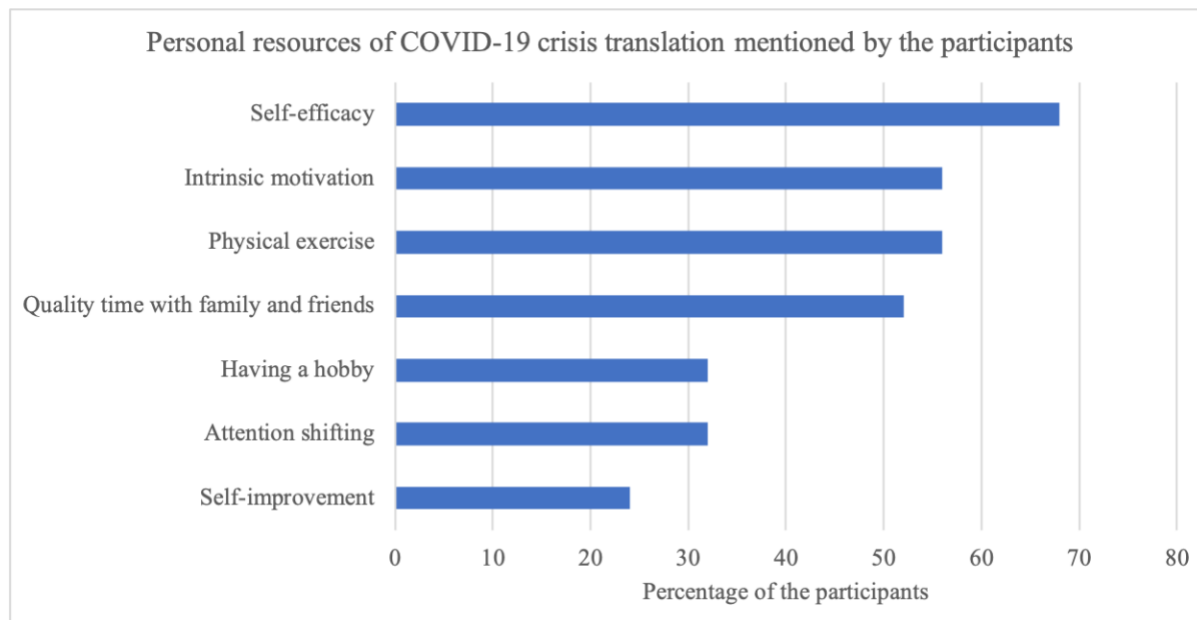
Figure 5.4 Personal resources of COVID-19 crisis translation

This figure illustrates the personal resources of crisis translation during the COVID-19
pandemic mentioned by the participants.

Self-efficacy. Self-efficacy, which is defined as "beliefs in one's capabilities to

organise and execute the courses of action required to produce given attainments" (Bandura,

1997, p. 3), is a powerful personal resource that determines the level of engagement and

participants' perceived work stress. When asked about the level of confidence in their ability

to complete the translation/interpreting tasks successfully, 68% (n=17) of the participants,

especially professionals and bilinguals, indicated a high level of self-efficacy. For instance,

P9-P said, "I'm 100% sure that I have the skills necessary [to manage the work challenges]

(line 100) … This year, I haven't received a single complaint. So, I strongly believe in my

skills and competencies" (lines 150–151). P21-B mentioned that her self-efficacy was partly

improved by teamwork, "I wouldn't say I'm 100% confident … Yet, as there were some

doctors in our group, under their guidance, plus my own knowledge … I would say my self-efficacy level was around 80 or 90 per cent" (lines 72–74).

Physical exercise. Second, 56% (n=14) of the participants adopted doing physical exercise as a positive coping strategy to regulate their emotions and lead a more emotionally balanced life amid the pandemic. For example, P3-P mentioned, "After doing exercise and building a strong physique, my mental health became different, so perhaps my anxiety was also relieved accordingly" (lines 68–69).

Intrinsic motivation. The results indicated that 56% (n=14) of the participants stated that they were more intrinsically motivated to engage in crisis translation based on their psychological needs. Their psychological needs, including a sense of responsibility and feelings of relatedness have been strengthened. The participants felt more connected with their colleagues and the target audience. As P2-B put it: "My favourite aspect may be teamwork. I prefer to accomplish something together within a team. Teamwork gives me a sense of accomplishment. I feel that I play a role in something when completing an important job collectively" (lines 166–168).

Quality time with family and friends. The results showed that 52% (n=13) of the participants considered talking and spending time with trusted people, including family and friends, as a personal resource. For some participants, the bright side of the crisis is that lockdowns enabled them to spend more time at home and strengthen family bonds; some were taken care of by their family while being busy doing translation; others released emotions by chatting with their support person. For example, P2-B said:

> I also had good communication with my family. I stayed at home at that time. It was the longest time I have been at home since junior high school … The family bonds also got stronger, which helped me deal with stress. If I were alone outside, my psychological state might be worse. (lines 98–104).

Having a hobby. The results indicated that 36% (n=9) of the participants reported that having a hobby is extremely beneficial in relieving their work stress and promoting their health during the pandemic. Their hobbies included reading, painting, listening to music, playing an instrument, cooking, etc. For instance, P20-P said: "In order to relieve my anxiety, I would do something else to keep myself from thinking about it, such as learning a musical instrument. This is how I relieve stress" (lines 34–36).

Attention shifting. Another coping strategy indicated 32% (n=8) of the participants is shifting their focus away from the stressors. The participants moderated their emotions by diverting attention away from Covid-19 news and updates when they felt overwhelmed. Talking about this issue, P1-P said: "As we couldn't go out, I just did some indoor exercise and meanwhile tried to pay less attention. I didn't pay attention to the [COVID-19] updates when I was off duty. Putting my whole focus on this would cause extreme stress" (lines 61–62).

Self-improvement. Six out of 10 professional interpreters and translators pointed out that their work stress and anxiety mainly came from worrying that the skills they had already built would fade over time, for they were unable to work for several months due to the pandemic. Therefore, their solution to destressing and alleviating anxiety is to keep self-learning and practising. For example, P12-P stated, "I think interpreters' way of stress management is actually self-improvement. Improve yourself and learn by yourself during the pandemic…This in itself will make me feel that I've lived each day to the fullest. Then I feel grounded during the day, and there will be no stress on this day" (lines 145–147).

Other strategies. Two participants, P5-P and P25-S, mentioned that they built a corpus from their own texts, which facilitated their work and prevented stressful situations from happening again in the future. In addition, P17-P thought one of the improvements she could make in the future is to use a corpus to improve work efficiency.

In conclusion, the most frequent reported personal resource is self-efficacy (68%), followed by positive coping strategies including physical exercise (56%), quality time with family and friends (52%), having a hobby (36%), attention shifting (32%), and self-improvement (24%). In addition, intrinsic motivation is also an important personal resource that provided the participants with inherent satisfaction.

Negative outcomes. The participants reported some negative effects of job demands, including psychological and physical costs. The results indicated that 76% (n=19) of the participants experienced anxiety. For example, P1-P said, "I experienced persistent anxiety, from the beginning to the end. This was reflected in my physical symptoms; I was in low spirits" (lines 47–48).

Other emotional issues included a lack of self-efficacy (36%, n=9), nervousness (32%, n=8) and feelings of depression (20%, n=5). Several factors contributed to a lack of self-efficacy, such as not having medical knowledge and situations beyond the participants' control (e.g., technical issues with online platforms and not receiving sufficient materials). For example, P24-B, despite being a medical practitioner, expressed his concern with a lack of self-efficacy and expertise in specific medical knowledge: "To be honest, professionally, I didn't have sufficient self-efficacy because my major is not in respiratory disease but in oncology" (line 122).

Physically, the participants experienced fatigue (60%) (n=15), sleep problems (36%, n=9), eye pain (12%, n=3), and neck, shoulder, and back pain (8%, n=2) due to the job demands (Figure 5.5). For instance, P3-P talked about the negative impacts of a heavy workload:

Yet, because of the huge number of tasks, sometimes I worried that I couldn't complete them in time, which would affect the rescue of other people or even their lives. And I felt anxious. Sometimes I couldn't sleep at night. I was also worried

about not getting enough rest and concerned about my physical health because of the

heavy workload. (lines 53–55)
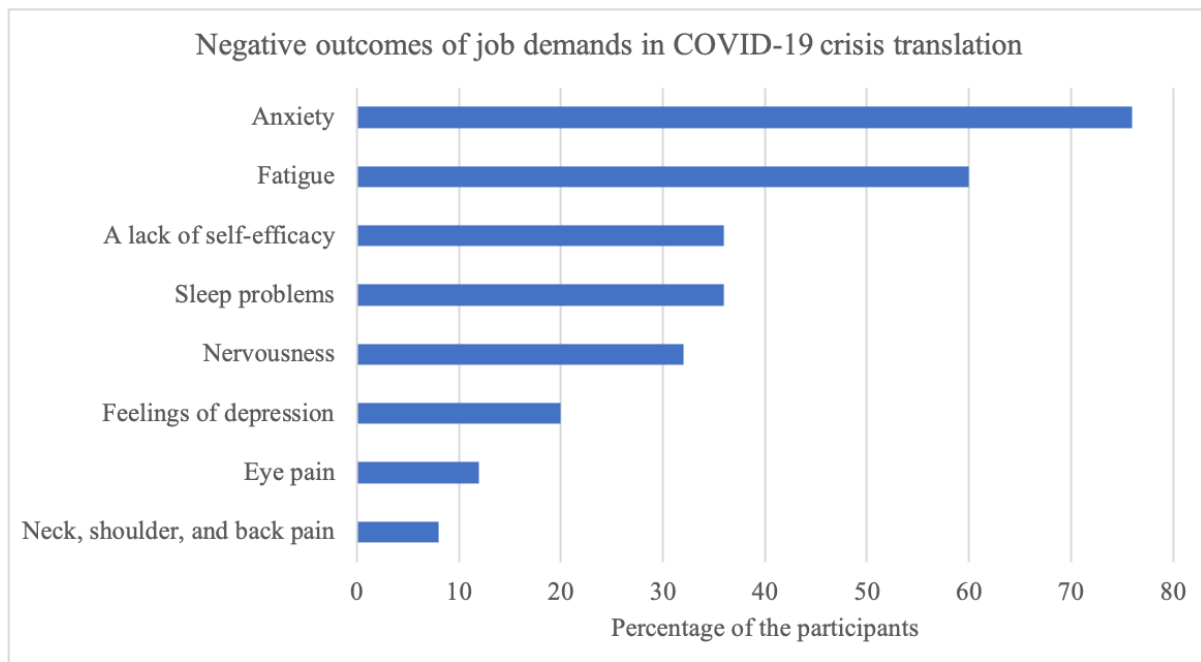
Figure 5.5 Negative outcomes of job demands in COVID-19 crisis translation

This figure illustrates the negative outcomes of job demands in crisis translation during the
COVID-19 pandemic mentioned by the participants.

Positive outcomes. The results indicated that 56% (n=14) of the participants obtained

a sense of accomplishment due to the job resources such as work challenge and feedback.

Second, the participants gained a sense of satisfaction (44%, n=11) and happiness (40%,

n=10) from the feedback on their performance (Figure 5.6). For example, P3-P, said:

The meaning is that it has directly helped the group we serve. They directly used the

information we provided to quickly handle overseas aid and supplies. It can help

those supplies to be used in a timely manner and can alleviate the huge medical

pressure and the shortage of supplies in Wuhan at that time. I think this is very

meaningful. It makes me feel a sense of pride and accomplishment. (lines 75–78).

Moreover, 44% (n=11) of the participants reported that pandemic-related translation and

interpreting work challenge enabled them to up-skill and expand their knowledge.
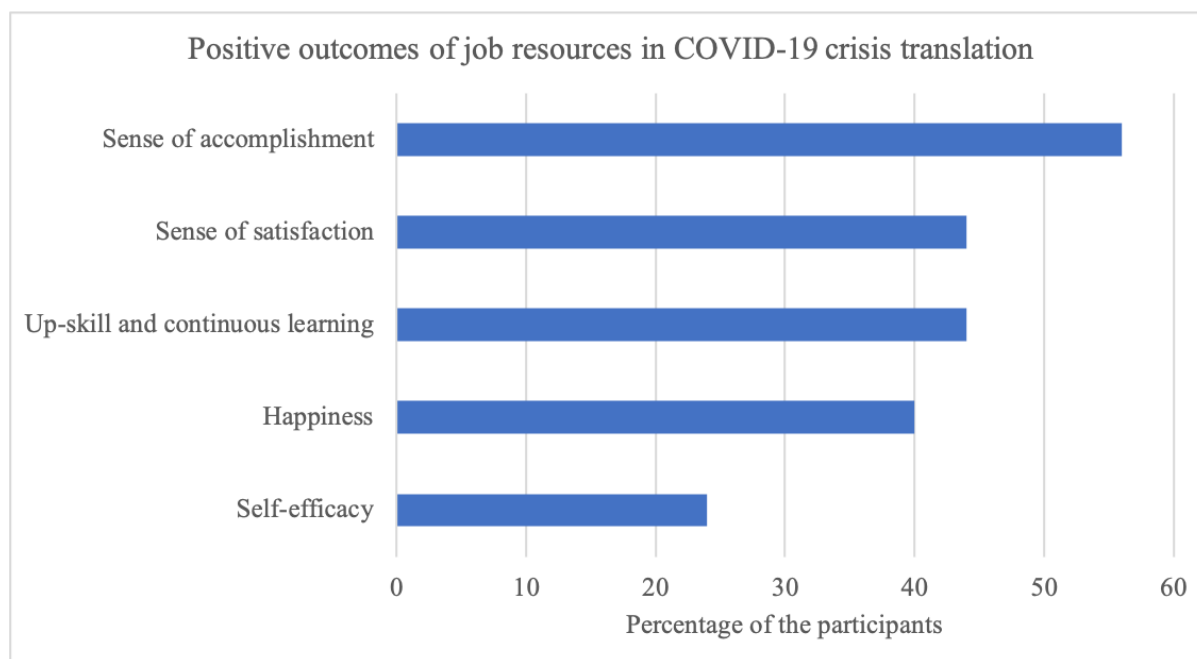
Figure 5.6 Positive outcomes of job resources in COVID-19 crisis translation

This figure illustrates the positive outcomes of job resources in crisis translation during the COVID-19 pandemic mentioned by the participants.

Although some participants, especially student translators, lack self-efficacy due to various job demands such as unfamiliarity with the content and various uncertainties as previously discussed, with the progress of the project they are engaged in, 24% (n=6) of the participants reported that their self-efficacy was improved over time through the job resources including peer support and feedback. For instance, P6-S shared his experience:

> To be honest, I didn't have much confidence in the beginning … I was really panicked … I think I was quite courageous to take the initiative to ask the lecturer for such a translation task … I didn't think I could be able to complete the task for the first time. Still, the lecturer kept encouraging me, implying what I had done was quite okay. So I thought I was getting better. The difficulty [of the texts] also increased progressively. Then I realized that I was not that bad, and I could complete the translation of those articles. I think the lecturer's encouragement and feedback was very important. (lines 110–123)

In summary, although the job demands have inevitable negative effects on the participants' physical and psychological health, their accounts showed that they tried to manage work stress amid the pandemic through a range of job and personal resources. Together, these results provide important insights into what caused work stress (i.e., job demands), what reduced the associated physiological and psychological cost (i.e., job and personal resources), the positive and negative outcomes. The results of the interviews answer the sub-questions of the interview survey:

M1.2 What are the job demands of crisis translation during COVID-19?

The primary job demands of crisis translation during the pandemic include emotional demands (92%), unfamiliarity with the content (72%), and time pressure (48%).

M2.2 What are the job and personal resources of crisis translation during COVID-19?

The primary job resources of crisis translation during the pandemic include peer support (100%), translation tools (92%), work challenge (60%), and feedback (32%). The primary personal resources include self-efficacy (68%), intrinsic motivation (56%), and a range of positive coping strategies such as doing physical exercise (56%), spending quality time with family and friends (52%), having a hobby (32%), attention shifting (32%), and self-improvement (24%).

M3.2 What are the outcomes of the job demands and job resources in crisis translation during COVID-19?

The negative outcomes of the job demands in COVID-19 crisis translation include both physical and psychological issues. Physically, the participants suffered from fatigue (60%), sleep problems (36%), eye pain (12%), and neck, shoulder, and back pain (8%). Psychologically, the participants experienced anxiety (76%), a lack of self-efficacy (36%), nervousness (32%), and feelings of depression (20%).

The results presented in this chapter indicate what constituted the job demands in COVID-19 crisis translation causing stress, what acted as the job resources that have the potential for destressing, and the associated psychological and physical outcomes of the job demands and resources. The next chapter moves on to discuss the findings of the main study and presents the best practice guidelines for engaging with translators and interpreters in times of the COVID-19 pandemic as an example of how to apply the research findings in practice.

Chapter 6 – Discussion

This chapter will first discuss the results and outcomes of the main study from the perspectives of job demands, resources, and the associated outcomes perceived by crisis translators in the COVID-19 setting. Second, to illustrate how to apply the findings into practice, we have developed a set of tailored best practice guidelines for engaging in crisis translation in times of the COVID-19 pandemic.

6.1 Main Study Findings

The main findings from the quantitative (i.e., online questionnaire) and qualitative (i.e., online interviews) data presented in Chapter 5 indicated the job demands, resources, and outcomes of crisis translation during the COVID-19 pandemic. The results of the questionnaire survey supported the dual-process in the JD-R model (Bakker et al., 2003); that is, job demands (e.g., time pressure, heavy workload, and mental demands) were important predictors of psychological costs (i.e., burnout and work strain) while job resources (e.g., organisational support) predicted work engagement and job satisfaction. This highlighted the importance of providing job resources for crisis translators to ensure their wellbeing in the context of the pandemic primarily within Chinese contexts.

The online interviews allowed us to further explore and expand the scope of the job demands, resources, and the corresponding outcomes of crisis translation during the pandemic. The results of the interview survey demonstrated the impacts of job demands and resources on the participants' physical and psychological wellbeing and their performance. The participants' accounts also illustrated the cause of work stress and the effect of the job demands and resources. It has been found that emotional demands, unfamiliarity with the content, and time pressure were the most significant job demands that resulted in physical and psychological issues, including anxiety, fatigue, a lack of self-efficacy, and sleep problems.

The results of the interview survey are consistent with previous studies. The participants' accounts showed that emotional demands are the most frequently mentioned job demand that they experienced. This is consistent with previous studies which pointed out that crisis or frontline translators/interpreters face psychological challenges including emotional fatigue, psychological pressure, and even vicarious trauma (e.g., Costa, Gutiérrez, & Rausch, 2020; Doherty, MacIntyre, & Wyne, 2010; Federici & Al Sharou, 2018; Lai & Heydon, 2015; Rojo López & Naranjo, 2021). For instance, a study on the emotional impacts of the COVID-19 pandemic on student translators found that the participants' anxiety levels and negative affect were significantly higher after reading and translating texts with a pessimistic framing as compared to the optimistic one (Rojo López & Naranjo, 2021).

Moreover, research found that emotional overload affects public service interpreters' performance (Doherty et al., 2010; Lai & Heydon, 2015). Although none of the participants in our study were traumatised by their translation/interpreting experience during the pandemic, given the great emotional impact of crisis translation mentioned by the participants, we believe that emotional demands involved in crisis translation should never be ignored and crisis translators need to be provided with solutions to coping with any potential emotional challenges.

 Second, the interview survey suggested that unfamiliarity with the content is another primary stressor. Similarly, this factor has also been identified as one of the major challenges that university student volunteers faced in response to multilingual needs of the local community in Shanghai during the COVID-19 pandemic (Zheng, 2020). Specifically, Zheng (2020) pointed out that as China was the first country to experience the pandemic, pandemic-related terminology did not exist in languages other than Chinese. Thus, there was little that translators could refer to. Moreover, due to a lack of public health and medical knowledge, volunteer translators had to check relevant terms one by one (Zheng, 2020).

Third, unsurprisingly, both the questionnaire and interview surveys suggested that time pressure is another factor that the participants were stressed about. Previous studies have shown that translators often work under stringent time constraints and have to cope with its psychological consequences (e.g., Jensen & Jakobsen, 2000; Rojo López, Cifuentes Férez, & Espín López, 2021; Weng, Zheng, & Dong, 2022). It has been found that compared to tasks performed with no time pressure, time constraints are associated with an increase in translation speed but poorer translation quality (Ghobadi, Madadi, & Najafian, 2017). Similarly, a study on the effect of time pressure on translation performance found that under extreme time pressure, higher self-esteem, despite a positive correlation with the number of more translated words, is a predictor of lower meaning and total accuracy (Rojo López et al., 2021). Moreover, research has showed that translators' self-reported stress and anxiety levels and physiological responses (including heart rate, blood pressure, and pupil dilation) are positively correlated with time constraints (Weng et al., 2022).

Regarding job resources, peer support was the most important one that helped the participants address work-related challenges. Translation tools, despite some disadvantages, reduced the participants' workload and mental demands. It is worth noting that feedback from end-users or clients played a critical role in enhancing the participants' sense of satisfaction and happiness. The most frequently mentioned personal resource was self-efficacy which increased the participants' level of engagement and reduced their perceived work stress. From an organisational perspective, according to the self-determination theory, which is an empirically based theory of human motivation, focusing on different types of motivation, work environments that support autonomy, self-efficacy/competence, and relatedness enhance wellbeing outcomes and intrinsic motivation (Deci & Ryan, 2008). Moreover, the participants adopted a range of positive coping strategies to deal with work

stress and emotional issues. The strategies included doing physical exercise, spending quality time with family and friends, having a hobby, attention shifting, and self-improvement.

Peer support, as the most frequently mentioned job resource by the participants, has also been identified as a strategy to facilitate crisis translation in Zheng's (2020) study. For example, in the Shanghai crisis translation group, as the Spanish team consisted of second-year student translators based in Shanghai and third-year students studying abroad in Madrid, those in Spain helped the second-year students improve the word choice based on their life experience in Spain to make the target text sound more natural (Zheng, 2020).

Second, the main study highlighted the indispensable role of translation tools in increasing productivity. Previous studies have also explored the emerging role of translation technology in crises (e.g., Federici & Al Sharou, 2018; O'Brien, 2020; O'Hagan, 2020). For example, O'Brien (2020) recommended the use of different types of translation technologies in crisis management, including translation memory, glossary management tools, translation management tools, and machine translation.

The results of the main study indicated the widespread use of translation tools among the participants. Yet based on the participants' accounts, despite its convenience, there is still a range of issues (e.g., consistency, accuracy, and fluency) in online instant translation services powered by machine translation engines, such as Google Translate and Baidu Translate. This is amply confirmed on the literature on the use of machine translation (Vieira, O'Hagan, & O'Sullivan, 2021). Thus, we recommend that although translation technology is an essential job resource in crisis translation, crisis translators need to be informed of the advantages and limitations of such tools and provided with post-editing strategies.

Third, the results of the interview survey suggested that feedback is a valuable job resource that is beneficial to the participants' wellbeing. Previous studies in occupational health psychology have found evidence for both causal and reversed causal effects between

job demands, resources, and wellbeing (e.g., Bakker & Demerouti, 2017; Boyd et al., 2011; De Beer, Pienaar, & Rothmann Jr, 2013). For example, it has been found that positive feedback, as one of the task-level job resources, predicted employees' work engagement, and work engagement predicted personal initiative over three years (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). Furthermore, research studies in occupational health psychology have found that job resources are a predictor of personal resources (e.g., self-efficacy and optimism) and work engagement, and personal resources and work engagement also reversely predict job resources (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). The findings suggested that those who are engaged have the motivation to stay engaged and increase their personal resources (Bakker & Demerouti, 2017). Therefore, we believe that the reciprocal relationships between job resources and wellbeing also apply to crisis translation during the COVID-19 pandemic. Translation project managers and group leaders should seek to obtain feedback from the end-users or clients and provide them for translator/interpreters in time to enhance their motivation and sense of accomplishment.

Regarding personal resources, the results showed that self-efficacy is the most important one. Previous studies in psychology have supported the effectiveness of self-efficacy training to help individuals' goal-achieving (e.g., Eden & Aviram, 1993; Hahn, Binnewies, Sonnentag, & Mojza, 2011; Tsay, 2003). As crisis translators not only consist of professionals but also students and bilinguals who have limited experience in translation/interpreting (e.g., Cadwell, 2019; Munro, 2010; Zheng, 2020), we believe that crisis translators, especially student translators, should be introduced to the concept of self-efficacy. In addition, crisis translation training itself, in turn, is a measure to increase crisis translators' self-efficacy by enhancing their mastery experience, the most potent source of self-efficacy (Bandura, 1997).

The participants adopted a range of positive coping strategies to cope with the psychological consequences of the job demands. This pointed to the importance of self-care in dealing with translation work stress. Compared with frontline workers and health and social care workers, interpreters receive little guidance on self-care (Costa et al., 2020). Researchers argued that it is an ethical responsibility to provide interpreters working in crisis contexts with self-care techniques to keep them fit and well-prepared (Costa et al., 2020). Moreover, interpreter codes of ethics need to incorporate the aspect of self-care (Costa et al., 2020). To help interpreters who worked in ethically challenging refugee contexts cope with work stress and prevent vicarious traumatization and burnout, Costa et al. (2020) launched a project which offered an intervention of remote support for non-professional interpreters who needed professional support and emotional relief. Results indicated that the support sessions improved the participants' self-care, resilience, confidence, and effectiveness (Costa et al., 2020). Regarding organisational support, the Crisis and Emergency Risk Communications (CERC) manual by the Centers for Disease Control and Prevention (CDC) (Health and Human Services and CDC, 2005, 2014, 2018a) and Psychological First Aid (PFA) (New Zealand Red Cross, 2020; WHO et al., 2011; WHO et al., 2013) have developed best practices and strategies to ensure physical health and psychological wellbeing of those who engage in crisis communication. These two frameworks in relation to crisis translation will be elaborated in the next section.

Apart from Costa et al.'s (2020) study, few, if any, studies have considered self-care techniques as a solution to dealing with work stress in translation and interpreting. While scholars have noticed that interpreters did not receive sufficient training on self-care to manage the negative impact of job demands on their wellbeing in mental health settings (Knodel, 2018), little attention has been given to translators' needs for such support. Based on the results of the main study, we argue that as it is important for crisis translators to apply

self-care strategies to ensure their wellbeing, any guidance or training on crisis translation should take self-care into consideration.

Among the positive coping strategies adopted by the participants, doing physical exercise is the most commonly used one. Research studies in psychology have supported the positive effects of physical exercise on destressing (e.g., Childs & de Wit, 2014; De Bruin, Formsma, Frijstein, & Bögels, 2017; Salmon, 2001). For instance, a study on 111 adults has found that regular exercise is correlated with emotional resilience to acute stress in healthy individuals (Childs & de Wit, 2014). In addition, although only used by one participant who had expertise in psychology, mindfulness and meditation have been proven to be effective ways of reducing stress and enhancing mental health and wellbeing (e.g., Athanas et al., 2019; Burch & Penman, 2013; Smith, 2014).

In the event of the COVID-19 pandemic, Torres-Hostench (2020) proposed that outdoor education, i.e., "education in, about, and for the out-of-doors" (Ford 1986, p. 1), needs to be incorporated into translator training to buffer the implications of lockdowns and translators' prolonged sedentariness. With abundant evidence for the benefits of outdoor education (e.g., Kuo, 2015; Pyun, Wang, & Koh, 2020; Rios & Brewer, 2014), it is argued that training translators outdoors is beneficial to trainees' physical and mental health, knowledge acquisition, social relations, and attitudes to learning (Torres-Hostench, 2020). Moreover, it is applicable to all kinds of translation courses, such as specialized translation, sight translation, simultaneous and consecutive interpreting, and machine translation post-editing (Torres-Hostench, 2020).

Thus, we propose that in crisis translation training, the importance and benefits of physical exercise can be emphasised, and trainees may wish to learn and practise mindfulness and meditation techniques. In addition, other strategies (e.g., having a hobby, attention

shifting, and self-improvement) adopted by the participants are also worth mentioning to trainees to provide them with more options and inspiration.

Regarding the outcomes of job demands and resources, the results are consistent with previous studies in occupational health psychology (e.g., Fernet, Austin, & Vallerand, 2012; Hakanen, Schaufeli, & Ahola, 2008; Tong, Yang, Li, & Li, 2019). For example, a study of 477 employees working in a call centre found that job demands (i.e., work pressure, computer problems, emotional demands, and changes in tasks) significantly predicted health problems (Bakker et al., 2003). By contrast, job resources (i.e., social support, supervisory coaching, performance feedback, and time control) were predictors of involvement in the motivation-driven process. In addition, job resources were negatively correlated with health issues (Bakker et al., 2003).

Furthermore, as the participants reported work-related health complaints including fatigue, sleep problems, eye pain, and neck, shoulder and back pain, health behaviour should be promoted. This can be achieved through the introduction to one of the influential health behaviour models in Health Psychology, such as the Health Belief Model (Hochbaum, 1958), the theory of planned behaviour (Ajzen, 1985), the transtheoretical model of health behaviour change (Prochaska & DiClemente, 1983), etc.

Therefore, we argued that in the practice of crisis translation during COVID-19, more emphasis should be laid on understanding and providing translators and interpreters with more job resources and informing them of potential personal resources that they could tap into to buffer the effects of job demands on their wellbeing. This is because first, job demands (e.g., time pressure and heavy workload) in translation/interpreting work are inevitable; and second, the results of the studies showed that the job demands have been intensified in a crisis setting, especially those who are not well experienced in translating/interpreting.

Based on the findings of the main study, we will propose the best practice guidelines for engaging in crisis translation in times of the COVID-19 pandemic by referring to and adapting the frameworks of the CERC manual and PFA. This is an illustration of how to apply the research findings in practice. The following sections will introduce the frameworks of CERC and PFA.

6.2 Crisis and Emergency Risk Communication (CERC) Manuals by the Centers for Disease Control and Prevention (CDC)

The Centers for Disease Control and Prevention (CDC) is one of the major operating components of the U.S. Department of Health and Human Services (HHS). As a health protection agency, CDC aims to protect its people "from health, safety and security threats" (HHS and CDC, 2021). The Crisis and Emergency Risk Communications (CERC) manual by CDC provides whoever communicates on behalf of an organisation in response to public health emergencies with an evidence-based framework and best practices (HHS and CDC, 2018a). CERC was developed by applying "psychological and communication sciences, studies in the field of issues management, and lessons learned from emergency responses" as its central part (HHS and CDC, 2018a, p. 2). The CERC framework and principles help organisations provide information for the public "to make the best decisions and to accept the imperfect nature of choice, under incredibly challenging time constraints" (HHS and CDC, 2018a, p. 2). The following section will elaborate on the CERC framework and its principles that this thesis will draw on to apply to crisis translation.

6.2.1 The Six Principles of CERC

Since the first publication of the CERC manual in 2002, the principles of CERC have been leveraged to address a range of public health crises such as avian influenza (H5N1) (Seeger, Reynolds, & Sellnow, 2009), Ebola (Kieh, Cho, & Myles, 2017) and the ongoing

COVID-19 pandemic (Sauer, Truelove, Gerste, & Limaye, 2021). The CERC guidance in a series of manuals is encapsulated in six principles (HHS and CDC, 2018a, p. 3):

1. Be first:

Crises are time sensitive. Communicating information quickly is crucial. For members of the public, the first source of information often becomes the preferred source.

2. Be right:

Accuracy establishes credibility. Information can include what is known, what is not known, and what is being done to fill in the gaps.

3. Be credible:

Honesty and truthfulness should not be compromised during crises.

4. Express empathy:

Crises create harm, and the suffering should be acknowledged in words. Addressing what people are feeling, and the challenges they face, builds trust and rapport.

5. Promote action:

Giving people meaningful things to do calms anxiety, helps restore order, and promotes some sense of control.

6. Show respect:

Respectful communication is particularly important when people feel vulnerable. Respectful communication promotes cooperation and rapport.

The six principles of CERC are a practical tool for crisis leaders, health communicators, and emergency response personnel on the ground to grapple with the harsh realities of communicating with employees, media, partners, and stakeholders during a crisis (Miller et al., 2021; Reynolds & Earley, 2010).

6.2.2 Messages and Audiences

CERC highlights four aspects regarding messages and audiences in emergency communication: "understanding your audiences", "making facts work in your message", "building credibility and trust", and "gathering audience feedback" (HHS and CDC, 2018b, p.2). These four aspects share similar ideas with a tailored 4-A (i.e., availability, accessibility, acceptability, and adaptability), rights-based analytic framework to crisis translation (O'Brien et al., 2018).

First, CERC claims that there is no one-size-fits-all information for the general public. It suggests that message delivery and context should be adapted for different audiences to meet their cultural and accessibility needs (HHS and CDC, 2018b). This is in line with "adaptability" in the 4-A framework that requires translation to be adapted to different scenarios (O'Brien et al., 2018). Adaptability is particularly important in crisis translation as first, showing respect for the affected communities and their cultures is one of the ethical responsibilities in delivering crisis translation services (O'Mathúna et al., 2019); second, text simplification has been proved to be an effective approach to improving readability, comprehension and machine translatability of health-related content (Rossetti, 2019).

Adapting messages has been put into practice by translators in response to COVID-19 to facilitate comprehension of the message and make the target text more tailored for the intended readers (Wang, 2019). For example, when carrying out Chinese to English translation of a message that explains to parents and children how children are infected with COVID-19, the Wuhan Crisis Translation Team adjusted the wording by using plain English with simplified sentence structure and paraphrasing medical terminology to ensure the target audience (i.e., parents and children) fully understand the message (Wang, 2019).

Second, regarding "making facts work in your message", HHS and CDC (2018b) highlighted that crisis communication is different from routine communication as it is more

challenging for people to understand and remember messages under stress. Thus, crisis information should be concise and main messages need to be repeated. HHS and CDC (2018b) also advised that crisis communication should use positive statements when giving action steps such as "drink bottled water" instead of "do not drink the water" to eliminate confusion (p. 6); in addition, using personal pronouns in the message improves credibility and cohesion.

Next, building credibility and trust determines successful communication. Credibility depends on the speed of the message release and the accuracy of information while trust is based on empathy and openness (HHS and CDC, 2018b). Similarly, the standard of "adaptability" in the 4-A framework (O'Brien et al., 2018) indicates that translation should be accurate and appropriate.

Fourth, HHS and CDC (2018b) noted the importance of gathering audience feedback because it enables communicators to understand how end-users receive and interpret information. It then further helps communicators adapt and refine messages for different audience groups. Similarly, research on crisis translation indicated that translation should be a two-way process, "allowing for translation of critical information to but also from affected communities" (O'Mathúna et al., 2019, p. 4). Additionally, TWB (2020) also emphasised that in response to COVID-19, a two-way information flow must be provided through appropriate channels that can reach the marginalised groups so that their questions and concerns can be heard.

In summary, HHS and CDC's (2018b) four aspects regarding messages and audiences and O'Brien et al.'s (2018) 4-A framework have the same fundamental principle of facilitating communication during crises. The former complements the latter by adding additional practices, such as gathering audience feedback and the usage of personal pronouns. Thus, it is argued that incorporating HHS and CDC's (2018b) standards into crisis translation

could improve and refine the existed framework of crisis translation and would be a useful tool for practice guidelines for engaging in crisis translation.

6.2.3 Managing Stress in Crisis Response Professions

The CERC manual of human resources for crisis communication focuses on maintaining the well-being of communicators and addressing psychological health issues of response workers and their families (HHS and CDC, 2014). A crisis is a complex and stressful work environment that requires diverse resources. It brings people who might not usually interact together. This includes people with varied "training, backgrounds, expectations, and experiences" (HHS and CDC, 2014, p. 1). This may cause conflicts and bring challenges to coordination. Therefore, while it is critical to focus on those who are directly affected by the crisis, close attention needs to be paid to the physical and emotional well-being of responders to ensure an effective response for all the stakeholders (HHS and CDC, 2014).

Research studies have indicated that responders including public health officials, CERC professionals, healthcare providers, and trade workers experience increased levels of stress, including emotional exhaustion, anxiety, depression, and psychological distress, ranging from short-term stress reactions to the long-term effects of PTSD (e.g., HHS and CDC, 2014; Mardikian, 2008; Pfefferbaum & North, 2020). If employers do not address concerns for ensuring the safety of responders during crisis response beforehand, there will be higher rates of distraction, poor decision, absenteeism, and refusal to come to work (Benedek, Fullerton, & Ursano, 2007; Jackson, Peterson, Bartis, LaTourrette, & Brahmakulam, 2002). Therefore, HHS and CDC (2014) suggested that a series of pre-crisis activities should be incorporated into human resources planning, including job training, stress management training, expertise assessment, and maintaining a registry of communication professionals. Techniques and skills that help reduce stress include "exercise, meditation,

relaxation, and development of support systems" (p. 5). As not every technique works for each individual, people need to figure out what suits them best (HHS and CDC, 2014).

A strong, negative impact of a crisis may hinder first responders and crisis public information officials from performing their response duties (American National Red Cross, 2009). Thus, responders need to understand the severity and intensity of their experiences and discuss their emotions with others (Guy, Newman, & Emel Ganapati, 2013). Employees should be encouraged to openly talk about their needs and the challenges they are facing with the supervisor and use stress management techniques such as the following actions:

- Recognize that emotions will be high in this abnormal setting and talk about it.

- Eat nutritious food (e.g., fruit versus donuts, peanuts versus chips).

- Take mental breaks.

- Avoid lots of caffeine or alcohol.

- Leave when your shift is over.

- Exercise. (HHS and CDC, 2014, p. 11)

Individual approaches for stress prevention and management:

- Manage your workload:

  o Set task priority levels with realistic work plans.

  o Recognize that "not having enough to do" or "waiting" is an expected part of any disaster response.

- Balance your lifestyle:

  o Eat nutritious food, stay hydrated, and avoid excessive caffeine, alcohol, and tobacco.

  o Get adequate sleep and rest, especially on longer assignments.

  o Get physical exercise.

      o   Maintain contact and connection with primary social supports.

- Use stress reduction strategies:

    o   Reduce physical tension by using familiar personal strategies (e.g., take deep breaths, do some gentle stretching, meditate, wash your face and hands, and practice progressive relaxation).

    o   Pace yourself between low- and high-stress activities.

    o   Use time off to decompress and "recharge batteries" (e.g., get a good meal, watch TV, exercise, read a novel, listen to music, take a bath, or talk to family).

    o   Talk about emotions and reactions with co-workers during appropriate times.

- Maintain self-awareness:

    o   Recognize and heed early warning signs for stress reactions.

    o   Accept that one may not be able to self-assess problematic stress reactions.

    o   Recognize that over-identification with or feeling overwhelmed by victims' and families' grief and trauma may signal a need for support and consultation.

    o   Understand the differences between professional helping relationships and friendships to help maintain appropriate roles and boundaries.

    o   Examine personal prejudices and cultural stereotypes.

    o   Recognize when one's own experience with trauma or one's personal history interferes with effectiveness.

    o   Be aware of personal vulnerabilities and emotional reactions, and the importance of team and supervisor support. (HHS, 2005, p.21)

Suggestions of actions for supervisor support that are relevant to crisis translation are presented as follows:

- Remind workers about the value of their effort.

- Expect high emotions and provide someone with whom workers can talk.

- Respond to even timid requests for relief or reassignment.

- Encourage exercise and personal grooming time.

- Accept inoffensive "silliness" that some use to let off steam.

- Despite what they say, insist that workers take time to sleep. (HHS and CDC, 2014, p. 12)

For Supervisors: Minimizing Stress During the Crisis

- Clearly define individual roles and re-evaluate if the situation changes.

- Institute briefings at each shift change that cover the current status of the work environment, safety procedures, and required safety equipment.

- Partner inexperienced workers with experienced veterans. The buddy system is an effective method to provide support, monitor stress, and reinforce safety procedures. Require outreach personnel to enter the community in pairs.

- Rotate workers from high-stress to lower-stress functions.

- Implement flexible schedules for workers who are directly impacted by an event. This can help workers balance home and job responsibilities.

- Ensure that lighting is sufficient, adjustable, and in good working order.

- Provide mobile phones for workers in dangerous environments. Ensure that personnel know whom to call when problems arise. (HHS, 2005, p. 10)

The above guide to stress management for crisis response professionals provides a frame of reference for practice guidelines for engaging in crisis translation. Admittedly, the scope of crisis communicators' work is broader than crisis translators while crisis translation, as an emerging area, may involve unique job characteristics that HHS and CDC's (2014) manual has not covered. Thus, it is necessary to adapt and refine relevant crisis

communication guidelines to make it applicable to practice guidelines for engaging in crisis translation.

6.3 Psychological First Aid (PFA)

Since the first conceptual introduction in the mid-20th century, Psychological First Aid (PFA) has become the first and most preferred early intervention for disaster and extreme event survivors and responders (Ruzek et al., 2007; Watson, Brymer, & Bonanno, 2011). PFA is defined as "a humane, supportive response to a fellow human being who is suffering and who may need support" (WHO, War Trauma Foundation, & World Vision International, 2011, p. 3). Due to its frontline nature, it is not designed to be administered by mental health professionals; rather, it is intended for delivery by lay providers such as professional crisis responders and PFA-trained disaster volunteers (Shultz & Forbes, 2014). It has been widely endorsed, adopted, and used by many national and international disaster response organisations and agencies in complex humanitarian crises and emergencies worldwide (Allen et al., 2010; Cain, Plummer, Fisher, & Bankston, 2010).

6.3.1 PFA Action Principles

WHO et al. (2011) developed a framework consisting of three action principles (i.e., look, listen, and link) to enable field workers to offer PFA effectively. Moreover, in addition to the three actions, field workers need to be prepared before entering a crisis site to understand the situation and be aware of their own safety (WHO et al., 2011). The key points of the four actions are shown in Figure 6.1.

The PFA action principles are related to crisis translation because first, preparation is an essential process and competence to facilitate translation and interpreting work (e.g., Antón, 2016; Bowker & Marshman, 2009; Fantinuoli, 2017). In the context of COVID-19, a lack of background knowledge and specialised translators has been identified as a challenge that needs to be tackled (Luo, 2021; Zheng, 2020). Therefore, according to the PFA action

principles (WHO, War Trauma Foundation, & World Vision International, 2013, p. 30),

learning about "the crisis event", "available services and supports", and "safety and security

concerns" will not only ensure on-site language mediators to be aware of their own safety,

but also help them to build background knowledge of the crisis event.

Second, according to the three action principles (i.e., look, listen, and link), field

workers need to understand "people's needs and concerns", help people "access services",

and "give information" (WHO et al., 2013, p. 30). These roles are similar to those of crisis

translators. The purpose of crisis translation is to address multilingual communication needs

and enable culturally and linguistically diverse (CALD) communities to access to timely and

accurate information (O'Brien & Federici, 2020).

Figure 6.1 PFA action principles

(WHO et al., 2013, p. 30)

6.3.2 Five Essential Elements

PFA models are proliferating with a range of providers (e.g., U.S. National Child

Traumatic Stress Network, International Federation of Red Cross and Red Crescent Societies,

and Australian Red Cross) developing an increasing number of frameworks targeting an

expanding array of populations (Shultz & Forbes, 2014). The core of PFA model

development is five essential elements identified by Hobfoll et al. (2007). These five elements are promoting (1) sense of safety, (2) calming, (3) connectedness, (4) self- and collective efficacy, and (5) hope (Hobfoll et al., 2007). These principles have been adapted and applied to the development of PFA protocols in the context of COVID-19 (e.g., National Health Service, 2020; New Zealand Red Cross, 2020; Sulaiman et al., 2020). For example, the New Zealand Red Cross (2020) developed a supplementary PFA booklet to the New Zealand Red Cross Psychological First Aid guide by adapting the five elements for COVID-19 to help New Zealanders better cope with the pandemic. The key information in the booklet that might be applied to practice guidelines for engaging in crisis translation is summarised in the following section:

6.3.3 Self-care and Stress Management

PFA always emphasises the importance of self-care for field workers in a crisis. First, a crisis may directly affect field workers or their families. Even though there is no direct influence on them, field workers may still be affected by what they see and hear while providing support. Thus, those who provide help in a crisis need to be aware of their own wellbeing so they can take better care of others. In addition, field workers also need to pay attention to the wellbeing of their colleagues when working in a team (WHO et al., 2011).

First, to be prepared for offering help in a crisis, one should:

- Learn about crisis situations, and roles and responsibilities of different kinds of helpers.

- Consider your own health, and personal or family issues that may cause severe stress as you take on a helping role for others.

- Make an honest decision about whether you are ready to help in this particular crisis situation and at this particular time. (WHO et al., 2011, p. 38)

Next, field workers may face a range of job-related stressors during a crisis including "long working hours, overwhelming responsibilities, lack of a clear job description, poor communication or management, and working in areas which are not secure" (WHO et al., 2011, p. 39). Field workers may better cope with stress by following the suggestions below:

- Think about what has helped you cope in the past and what you can do to stay strong.

- Try to take time to eat, rest and relax, even for short periods.

- Try to keep reasonable working hours so you do not become too exhausted. Consider, for example, dividing the workload among helpers, working in shifts during the acute phase of the crisis and taking regular rest periods.

- People may have many problems after a crisis event. You may feel inadequate or frustrated when you cannot help people with all of their problems. Remember that you are not responsible for solving all of people's problems. Do what you can to help people help themselves.

- Minimize your intake of alcohol, caffeine or nicotine and avoid non-prescription drugs.

- Check in with fellow helpers to see how they are doing and have them check in with you. Find ways to support each other.

- Talk with friends, loved ones or other people you trust for support. (WHO et al., 2011, p. 39)

Finally, WHO et al. (2011) believed that taking time to rest and reflect is conducive to field workers' recovery. Some helpful suggestions are as follows:

- Talk about your experience of helping in the crisis situation with a supervisor, colleague or someone else you trust.

- Acknowledge what you were able to do to help others, even in small ways.

- Learn to reflect on and accept what you did well, what did not go very well, and the limits of what you could do in the circumstances.

- Take some time, if possible, to rest and relax before beginning your work and life duties again.

In addition to the suggestions on self-care by WHO et al. (2011), New Zealand Red Cross (2020) highlighted that taking care of oneself is an essential prerequisite for supporting others. It is necessary to identify the stressors, to recognise the symptoms of stress, and to take measure to destress. The suggestions on self-care for supporters are: (1) "pace yourself"; (2) "look after your body"; (3) "recognise your stress"; (4) "know what you can & can't do"' (5) "connect with others for support"; and (6) "don't hesitate to seek professional support" (New Zealand Red Cross, 2020, p. 7).

Regarding the application of PFA in best practice guidelines for engaging in crisis translation, the purpose of using PFA in this thesis is to provide PFA's techniques and insights for crisis translators to prepare themselves with practical tools for coping with work stress and supporting each other when being exposed to a stressful crisis event. As pointed out by WHO et al. (2011), information provided in the guide is conceptual, practitioners need to adapt it to the local context and culture of the people in need. Therefore, we only draw on the key points that are helpful for crisis translators.

In summary, CERC and PFA demonstrate a range of stress management strategies during crises. These two frameworks provide important insights into principles of crisis communication, and evidence-informed practices for maintaining field workers' physical and psychological wellbeing in response to a crisis. The next section will propose the best practice guidelines for engaging in crisis translation in times of the COVID-19 pandemic based on the research findings and the frameworks of CERC and PFA.

6.4 Best practice guidelines for engaging in crisis translation in times of the COVID-19 pandemic

The research findings have identified specific job demands, resources, and the associated outcomes in crisis translation during the COVID-19 pandemic. It provides empirical evidence for us to propose tailored best practice guidelines for engaging in crisis translation to ensure the participating linguists' wellbeing. Based on the research findings, together with the frameworks provided by the PFA (New Zealand Red Cross, 2020; WHO et al., 2011; WHO et al., 2013) and principles of CERC (HHS and CDC, 2005, 2014, 2018a), the proposed guidelines consist of four sections: crisis translation peer support action principles, suggestions for crisis translation team leaders and project managers, suggestions for translators and interpreters engaging in crisis-related work, and suggested topics that should be included in crisis translation training. The best practice guidelines proposed below strictly stick to the research findings and refer to the relevant elements of PFA and CERC, aiming to help crisis translators to mitigate their work stress, better cope with job demands and tap into job resources to mitigate the negative impacts of job demands, thus promoting their wellbeing when engaging in crisis translation.

6.4.1 Crisis translation peer support action principles

Regarding the best practice guidelines for engaging in crisis translation, we proposed that the PFA action principles (WHO et al., 2013) could be applied to better prepare translators and interpreters for engaging in crisis translation. As the target audience of PFA is different from crisis translators, however, we borrow the framework of the PFA action principles as discussed in Section 3.3.1 and modify it to suit our target users, i.e., crisis translators including crisis translation team leaders and crisis translation managers (Figure 6.2). According to the interview results, peer support is the most important job resource for the participants to handle work challenges and emotional issues. Thus, as for the crisis

translation action principles, we adapt the PFA action principles to focus on promoting peer

support. The crisis translation peer support action principles are a quick-reference guide that

applies to anyone who engages in crisis translation, be them professional practitioners or

volunteers.

PFA Action Principles	Crisis Translation Peer Support Action Principles
Prepare • Learn about the crisis event • Learn about available services and supports • Learn about safety and security concerns	**Prepare** • Learn about the crisis event through official channels (e.g., WHO) • Learn about available services and supports for translation/interpreting (e.g., suitable, accessible translation tools) • Learn about safety and security concerns
Look • Observe for safety • Observe for people with obvious urgent basic needs • Observe for people with serious distress reactions	**Look** • Observe for co-workers who may need support • Observe for co-workers with distress reactions
Listen • Make contact with people who may need support • Ask about people's needs and concerns • Listen to people and help them feel calm	**Listen** • Make contact with co-workers who may need support • Ask about co-workers' needs and concerns • Listen to co-workers and help each other feel calm
Link • Help people address basic needs and access services • Help people cope with problems • Give information • Connect people with loved ones and social support	**Link** • Help co-workers cope with translation/interpreting difficulties (e.g., division of labour) • Share your thoughts and feelings with each other
(WHO et al., 2013, p.30)	

Figure 6.2 Crisis translation peer support action principles

This figure demonstrates the modified actions principles for peer support in crisis translation
and compares it with the PFA action principles.

6.4.2 Suggestions for crisis translation team leaders and project managers

The following set of guidelines is written, addressing the users directly (i.e., you).

1. Be credible:

For volunteer groups, people may distrust the authenticity of the intention of the

volunteer translation team (e.g., profit-making agencies recruiting translators under the guise

of volunteering for public interest). Acknowledge potential doubts, clarify your identity and

provide credentials (if possible) to build trust and rapport.

2. Prepare briefings:

Prepare briefings when you assign work. You need to include the following aspects:

what the task is, when it needs to be done, who are the end-users, who will do the task, what

support do people need to finish the task (e.g., file conversion). Clearly define individual

roles and re-evaluate if the situation changes. If possible, partner novices with more

experienced translators/interpreters. The buddy system is an effective method to provide support, monitor stress, and ensure output quality.

3. Encourage open communication:

Respectful and open communication promotes cooperation and rapport. You should create an environment where the team members can at any time openly communicate with their work-related and emotional challenges. Particularly, encourage experienced translators/interpreters to reach out to the less experienced. Chances are novices, especially student translators/interpreters, are struggling with specific difficulties but are ill at ease to talk to the experienced.

4. Express empathy:

Addressing what your team members are feeling and the challenges they face builds trust and rapport. Remind translators/interpreters about the value of their effort.

5. Promote self and group efficacy

Assist in setting realistic goals and prioritising tasks. Encouraging your members to think of ways they can help others is also one of the most important ways of promoting efficacy. Promote the importance of self-care such as keeping to a daily routine, healthy food, good sleep, daily exercises, and enjoyable activities.

6. Gather feedback:

As a leader of a team, you should proactively gather feedback from the clients. It gives translators/interpreters a sense of accomplishment and satisfaction and also enhances their happiness and self-efficacy. If possible, you should also seek rewards (e.g., certificate or little koha) for your members.

6.4.3 Suggestions for translators and interpreters engaging in crisis-related work

1. Build background knowledge

Prior to doing translation or interpreting for a crisis, you need to obtain crisis-related background knowledge and updates through reliable sources such as official websites (e.g., WHO).

2. Develop computer skills (e.g., file conversion, advanced search skills, etc.)

In a crisis situation, files that you are asked to translate may be piecemeal; it may be an image or a photo instead of a Word or PDF file that you normally work on. Thus, it is highly recommended developing computer skills such as file conversion or image editing to prepare for uncertainties.

3. Build a glossary

To achieve consistency and accuracy, you can build a glossary based on the crisis event. Make sure the translation of terminology and proper nouns are accurate and consistent with the official. Chances are there will be an explosion of new words following a crisis; thus, translation tools may have accuracy and consistency problems.

4. Communicate and collaborate with others

You may face a range of stressors when doing crisis-related translation/interpreting work, such as time pressure and a heavy workload. While those stressors are inevitable, they could be resolved through cooperation and collaboration. Communication is the key to effective teamwork. Talk about emotions and reactions with co-workers during appropriate times. Try to keep reasonable working hours, so you do not become too exhausted. Consider, for example, dividing the workload among colleagues.

5. Build a corpus afterwards

Building a corpus after you finish the tasks helps you reflect on what you have done and learn continuously. It will also facilitate your work if you engage in similar tasks in the future.

6. Take time to rest and reflect

Acknowledge what you were able to do to help others, even in small ways. Learn to reflect on and accept what you did well, what did not go very well, and the limits of what you could do in the circumstances. Take some time, if possible, to rest and relax before beginning your work and life duties again.

7. Self-care

- Pace yourself
    - Try to keep reasonable working hours, so you do not become too exhausted
    - Try to take time to eat, rest and relax, even for short periods
    - Consider dividing the workload among your co-workers, collaborating during the acute phase of the crisis and taking regular rest periods. Speak to others about the challenges/obstacles and stressors. Acknowledge your own vulnerability and stresses.

- Look after your body
    - Eat well, sleep well and be active. Keep to as many of your daily routines as possible.
    - Minimise your intake of alcohol, caffeine or nicotine and avoid non-prescription drugs.

- Recognise your stress
    - Know your own signs for when stress is building.

- Know what you can & cannot do
    - You may feel inadequate or frustrated when you cannot fulfil a task. Do what you can and reach out for help.
    - Those who request you to do crisis-related translation/interpreting may have different requirements and expectations. Communicate with them beforehand,

and you have the right to turn down the task if it clashes with your personal values.

- Connect with others for support

    o Talk with friends, loved ones or other people you trust for support

    o Check in with your fellow translators/interpreters to see how they are doing and have them check in with you. Find ways to support each other.

- Don't hesitate to seek professional support

    o View seeking support as a sign of professionalism, not weakness, and encourage this viewpoint amongst fellow translators/interpreters

    o When the event and your role is over, you may feel the need to make sense of your experience. It may help to talk with others involved or with a supervisory or mental health professional.

6.4.4 Suggested topics that should be included in crisis translation training

1. Use of translation resources

- How to choose and use appropriate translation resources based on the translation needs

    o Although there is various emerging translation technology, do not forget the introduction to paperback and electronic dictionaries as they can be more useful for less commonly used language pairs, such as Chinese-Arabic and Chinese-Spanish.

- Known problems with machine translation (e.g., inconsistency, inaccuracy, seemingly fluent but mistranslation)

- Post-editing skills

2. Promote healthy behaviour

- Introduction to health behaviour models (e.g., Health Belief Model [Hochbaum, 1958], the theory of planned behaviour [Ajzen, 1985], the transtheoretical model of health behaviour change [Prochaska & DiClemente, 1983])

- Techniques and exercise to relieve translation-related health complaints, e.g., eye pain, neck, shoulder and back pain

3. Stress management and self-care

- Positive coping strategies

    o Physical exercise

    o Quality time with family and friends

    o Having a hobby

    o Attention shifting

    o Self-improvement

- Brief Relaxation Exercise

    o Progressive Muscle Relaxation,

    o Mindfulness and meditation techniques, or

    o Calming breathing technique for stress

4. Already developed resources available for crisis translation training

- Preparedness in diverse communities: Citizen translation for community engagement (Shackleton, 2018).

- Training citizen translators: Design and delivery of bespoke training on the fundamentals of translation for New Zealand Red Cross (Federici & Cadwell, 2018)

- Crisis translation training challenges arising from new contexts of translation (Federici et al., 2019)

- Management and training of linguistic volunteers: A case study of translation at Cochrane Germany (Cadwell, Bollig, & Ried, 2019)

- Resources developed by the International Network on Crisis Translation (INTERACT): https://sites.google.com/view/crisistranslation/resources

- Citizen translation course by INTERACT:

  https://www.youtube.com/channel/UCRbg0k_1W8KU1xDFqZjDZtg/featured

In conclusion, this chapter discussed the research findings of the main study focusing on the job demands, resources, and associated outcomes in COVID-19 crisis translation. The research findings are consistent with previous, albeit limited number of, studies in Translation Studies and occupational health psychology. As the job demands (e.g., time pressure, emotional demands, and heavy workload) of translation and interpreting are inevitable and often intensified in a crisis situation, those who engage in crisis translation need to focus on tapping into job (e.g., peer support and translation tools) and personal resources (e.g., self-efficacy and positive coping strategies) to reduce work stress and mitigate negative effects of job demands (e.g., anxiety, fatigue, shoulder, neck, and back problems). Second, based on the research findings, we proposed a set of best practice guidelines for engaging in crisis translation in times of the COVID-19 pandemic by referring to and adapting the frameworks of PFA and CERC to illustrate an example of how to apply the research findings into practice.

Chapter 7 – Conclusion

This thesis set out to investigate work stress experienced by crisis translators who may be professionals or ad hoc volunteers performing translation tasks arising from the COVID-19 pandemic. Based on the initial and main studies, this thesis has: 1) identified work stress experienced by crisis translators in the COVID-19 setting and 2) applied the research findings to develop a set of tailored best practice guidelines for engaging in crisis translation, drawing on the JD-R model focused on stressors as job demands and de-stressors as job resources.

7.1 An Overview of the Key Findings

This thesis aims to answer the overarching question: what factors contribute to work-related stress among COVID-19 crisis translators with what impact? Three research questions have been developed as as the operationalisation of the overarching question based on the job demand-resources (JD-R) model. This thesis is among the first studies to examine work stress in crisis translation within the JD-R model. The initial study was designed to preliminarily understand job demands and resources in routine translation work, as experience by professional translators. We first validated the presence of stressors and work stress among New Zealand professional translators through an online questionnaire survey. The initial study results helped us to narrow down the factors given specific challenges in crisis translation and further design the main study in the context of the COVID-19 pandemic. For the main study, we adapted and refined the questionnaire to tailor crisis translators and collected crisis translators' accounts of their work experience in COVID-19 through interviews. The findings from the initial and main studies provided empirical evidence for developing the practice guidelines for engaging in crisis translation from the perspective of mitigating translators' work stress. Regarding theoretical frameworks, the JD-R model has been applied to study design and data analysis. The principles of crisis and emergency risk

communication (CERC) and psychological first aid (PFA) have been used as the main frameworks for developing the best practice guidelines.

The findings in this thesis indicated that people who engaged in crisis translation during the pandemic consisted of both professional linguists and volunteers working often in ad-hoc capacities. Regardless of their educational background and work experience in translation/interpreting, crisis translators in the context of COVID-19 experienced work stress and faced a range of challenges. This implies a need for providing support for crisis translators, especially ad-hoc volunteers who are less experienced and do not have the same level of support and resources available to professional translators in routine work conditions. The proposed best practice guidelines for engaging in crisis translation in times of the COVID-19 pandemic serve two purposes, a quick self-help first aid manual designed to maintain wellbeing for those who intend to participate in crisis-related translation/interpreting work, and second, providing pointers for crisis translation training to the existing materials already developed, for example, by the International Network on Crisis Translation (INTERACT) (e.g., Federici & Cadwell, 2018; Federici et al., 2019). As INTERACT has not focused on the psychological dimension of the translators, this thesis tries to fill in the gap by systematically examining work stress experienced by COVID-19 crisis translators.

To operationalise the overarching question, the main study enabled us to identify job demands, resources, and the associated outcomes, and answer the following research questions:

RQ 1 What are the job demands of crisis translation during COVID-19?

According to the questionnaire and interview surveys, the primary job demands of crisis translation during the COVID-19 pandemic include time pressure, prolonged periods of extremely intense concentration, emotional demands, long working hours, not receiving sufficient background materials and unfamiliarity with the content.

RQ 2 What are the job resources of crisis translation during COVID-19?

The primary job resources of crisis translation during the pandemic include peer support, translation tools, work/intellectual challenge, and feedback. The primary personal resources include self-efficacy, intrinsic motivation, and a range of positive coping strategies such as doing physical exercise, spending quality time with family and friends, having a hobby, attention shifting, and self-improvement.

RQ 3 What are the outcomes of the job demands and job resources in crisis translation during COVID-19?

The negative outcomes of the job demands in COVID-19 crisis translation include both physical and psychological issues. Physically, the participants suffered from fatigue, difficulty falling asleep or staying asleep, eye irritation, and neck, shoulder, and back pain. Psychologically, the participants felt exhausted for no good reason and experienced anxiety, a lack of self-efficacy, nervousness, and feelings of depression. The positive outcomes of the job resources include a sense of accomplishment, a sense satisfaction, up-skill and continuous learning, happiness, and self-efficacy.

7.2 Limitations of the Thesis

A number of limitations need to be noted regarding the present study. First, there were several concerns regarding the research design. As explained in Chapter 1, from the initial study to the main study, my research scope shifted from a New Zealand context to the COVID-19 pandemic which first broke out in China. The changed course caused a disjunction between the two studies such as the change in the main research site. In Chapter 1, I have explained why I changed the course of study due to the difficulty in collecting stress-related data in direct connection to crisis settings. Hypothetical scenarios via video clips showed some promise (apart from the issue with the data contamination), but the real situation unfolding was too powerful to miss, even at the expense of the loss of time spent for

my initial work. Yet, research that is closely related to the real crises is not as neat as one would like it to be either.

Second, although NVivo, the qualitative data analysis software used in the interview survey, provided me with a systematic way to analyse the data, it is no panacea for analysing qualitative data. Scholars have noted some drawbacks of using NVivo. First, NVivo tends to be a data management tool instead of a data analytics tool as it provides a platform to store and code data but is unable to interpret and analyse data (Dollah, Abduh, & Rosmaladewi, 2017). Therefore, the analysis and interpretation of the data significantly relies on the researcher's analytical skills (Wright-Bevans, 2017). Second, compared to traditional material methods, the software interface limited data interaction to a sequential and constrained visual format, which does not fully support data analysis and interpretation in the research process (Maher, C., Hadfield, Hutchings, & De Eyto, 2018). Nevertheless, the transcription and translation process gave me an opportunity to acquaint and engage with the data closely as much as possible to overcome the limitations of analysing qualitative data with NVivo.

Third, the majority of participants in the main study were crisis translators based in China. Due to cultural differences, results from the Chinese sample may or may not generalise to western samples. Moreover, as the main study's scope is limited to the COVID-19 pandemic, the findings cannot be generalised to all crisis scenarios. Having said that, I believed my findings exhibited some degree of generalisability in crisis translation, as the participants, including translation/interpreting students, bilinguals/multilinguals, and professionals, represent a large variety of language pairs, translation/interpreting tasks, and populations with different educational backgrounds and work experience in translation and interpreting. To this end, the guidelines can be used as the basis to further adapt to different types of crises.

Due to time and resource constraints, we do not have an opportunity to test the effectiveness of the proposed guidelines in practice. Although we have done our best to cover the most key aspects supported by the primary data collected in this thesis, the guidelines still have room for improvement. Thus, practitioners' and crisis translation trainees' feedback will continue to enhance the practice guidelines as an evolving document for engaging in crisis translation.

Moreover, as crisis translators' job demands and resources primarily depend on their experience and background in translation/interpreting, we are unable to design a set of one-size-fits-all practice guidelines that suit every crisis translator or trainee. Thus, the proposed best practice guidelines should be considered as a supplement instead of a comprehensive training programme. Practitioners need to take several factors, including the crisis event, translation needs, and the experience and background of crisis translators, into account when applying the best practice guidelines.

7.3 The Contribution of this Thesis to Knowledge

One of the unique contributions of this dissertation is that it took an initial step towards systematically examining job demands, resources, and the associated outcomes in crisis translation in the context of COVID-19 through quantitative and qualitative data. Despite the popularity of the JD-R model in academia and industry, to our best knowledge, this thesis is one of the first studies that applied this model in Translation Studies (TS) in the context of crisis translation. This, in turn, also expands the practical use of the JD-R model into crisis translation in general and the little explored dimension of crisis translators' wellbeing in particular. The empirical findings in this thesis have significant implications for the understanding of the cause and effect of crisis translation work stress during the pandemic and solutions to crisis translators' wellbeing.

The findings also validated the presence of emotional challenges and health complaints among those who engaged in COVID-19 related translation/interpreting work. We hope the findings in this regard could first bring scholars' and practitioners' attention to crisis translators' work challenges, thus, providing them with more resources that could facilitate their work and ensure their wellbeing at the same time and second, increase crisis translators' own awareness of self-care while performing such demanding work. This, in turn, will serve to ensure the sustainability of crisis translation.

The proposed practice guidelines fill in the gap in crisis translation training from the perspective of occupational health psychology. It supplements the existing training programme that primarily focuses on linguistic and cultural issues in crisis translation. For example, during a Crisis Translation Training that targeted master-level translation and interpreting students, an unexpected incident happened when a student became emotional while recalling her experience of a major earthquake. The researchers then made further revisions and added links to mental and wellbeing support in the materials (Federici, O'Hagan, O'Brien, & Cadwell, 2019). Moreover, Federici et al. (2019) suggested that the Crisis Translation Training should be revised based on research into crisis translators' accounts of cognitive and emotional challenges.

In addition to informing educational institutions and non-profit organisations that have provided or intend to provide crisis translation training, the findings presented in this thesis can also be used as a reference by government agencies in response to language needs in multilingual disaster settings as part of crisis communication plan. For example, during COVID-19, Wang (2019), a crisis manager of the Municipal Government of Wuhan, highlighted the necessity of training volunteer translators specifically targeting the crisis and proposed that crisis translation training needs to be part of a professional translator training programme.

In summary, as doing translation/interpreting in a multilingual crisis setting is challenging and demanding, this thesis aims to enhance crisis translators' resilience and preparedness by identifying stressors in COVID-19 crisis translation and proposing potential solutions to translation challenges and adverse emotional and physical outcomes.

7.4 Future Work

The first proposal for future work is to refine and improve the results that we have found here and re-test the theoretical relationship between job demands, resources, and the associated outcomes in another context. This will illustrate if it is a viable way to describe and explain the phenomena observed in another crisis setting, thus, providing interesting comparative data.

Second, results from the questionnaire survey in the main study indicated that organisational support is positively associated with job satisfaction and work engagement. However, due to the majority of the participants in the interview survey being volunteers and freelancers, they rarely talked about organisational support as they primarily relied on the job and personal resources. Thus, future research could further look into the types of organisational support and their effect on crisis translators' wellbeing and performance by interviewing full-time translators and interpreters.

In practical terms, the second proposal is to distribute the findings of this research outside of the academy to examine to what extent providing related job resources and educating on improving personal resources would actually help improve crisis translators' wellbeing and performance. There is good evidence from other research fields that increasing job and personal resources does actually improve wellbeing and performance in various areas (e.g., Karatepe, Ozturk, & Kim, 2019; Kotze, 2018; Yavas, Karatepe, & Babakus, 2011). Moreover, we recommend partnerships between scholars in TS and psychology to further look into crisis translators' emotional issues and health complaints, thus, finding solutions to

their physical and mental issues in engaging in crisis translation to avoid the risk of long-term health problems. As previously mentioned, the proposed best practice guidelines are merely an initial attempt to apply the research findings into practice. Therefore, we encourage scholars and crisis translation participants to test drive the guide and continue to enhance it.

To conclude, the purpose of this thesis is to identify job demands and resources in crisis translation and the corresponding outcomes in the context of the COVID-19 pandemic. It has been found that the primary job demands include time pressure, heavy workload, mental and emotional demands. Peer support, translation tools, work challenge, and feedback are the main job resources; self-efficacy and positive coping strategies are important personal resources. The main emotional issues and health complaints included anxiety, fatigue, a lack of self-efficacy, sleep problems, and nervousness. The positive outcomes of job and personal resources included a sense of accomplishment and satisfaction, up-skill and continuous learning, happiness, and an increase of self-efficacy. To ensure crisis translators' welling, we believe that more emphasis should be laid on providing more job and organisational resources and helping crisis translators improve their personal resources. Finally, we proposed the best practice guidelines for engaging in crisis translation in times of the COVID-19 pandemic in the hope of a practical significance for the stakeholders in crisis translation, including government agencies, educational institutions, translation team leaders and project managers, and crisis translators, to better respond to multilingual communication needs in times of crises.

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Appendix A – Initial Study Questionnaire

We would like to begin by asking you a few questions about your personal background and demographic characteristics. Please read each item and select the option that best describes you.

Q1 What is your gender?

○ Male

○ Female

○ Gender diverse

Q2 Which age group do you belong to?

○ 18-24

○ 25-34

○ 35-44

○ 45-54

○ 55-64

○ 65 and older

Q3 Working as a paid translator you are:

○ Employed full time as an in-house translator

○ Employed part time as an in-house translator

○ Self-employed

○ Other (please specify) _____

Q4 Name language(s) you translate from (source language(s)) and into (target language(s)).

○ Source language(s): _____

○ Target language(s): _____

Q5 In which city are you currently based?

_____

Q6 How many years have you been working as a paid translator? Use decimals (e.g. 1.5) to indicate half-years.

_____

Q7 Over the past year, how many hours per week (on average) have you worked as a translator?

_____

Q8 Ideally, how many hours per week (on average) would you like to work as a translator?

_____

Q9 Which one of the following statements best applies to you?

○ I have too little translation work.

○ I have the right amount of translation work.

○ I have too much translation work

Q10 Which bracket best describes your gross income (income before taxes and deductions) (New Zealand Dollars (NZD)) from translation in the last year?

○ Less than $5,000

○ $5,000 to $9,999

○ $10,000 to $14,999

○ $15,000 to $19,999

○ $20,000 to $24,999

○ $25,000 to $29,999

○ $30,000 to $39,999

○ $40,000 to $49,999

○ $50,000 to $74,999

○ $75,000 to $99,000

○ $100,000 or more

Q11 The following is a series of factors related to job satisfaction. To what extend are you satisfied/dissatisfied with the following factors?

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
1. The amount of work I have	○	○	○	○	○
2. Degree of work responsibility	○	○	○	○	○
3. End-use of the translated text	○	○	○	○	○
4. Exposure to a variety of subjects	○	○	○	○	○
5. Flexibility of work schedule	○	○	○	○	○
6. Meeting people (interesting colleagues, clients, etc.)	○	○	○	○	○
7. Others' respect and appreciation	○	○	○	○	○
8. Continuous learning, intellectual challenge	○	○	○	○	○
9. Socioeconomic status	○	○	○	○	○
10. Possibility of career progression	○	○	○	○	○

Q12 How often have you experienced the following thoughts or feelings? Please select the best fitting answer.

	Always	Very often	Sometimes	Rarely	Never
1. I feel emotionally drained from my work.	○	○	○	○	○
2. I feel used up at the end of the workday.	○	○	○	○	○
3. I feel tired when I get up in the morning and have to face another day on the job.	○	○	○	○	○
4. At my work, I feel bursting with energy.	○	○	○	○	○
5. Working all day is really a strain for me.	○	○	○	○	○
6. I feel burned out from my work.	○	○	○	○	○
7. I am immersed in my work.	○	○	○	○	○
8. I have become less interested in my work.	○	○	○	○	○
9. I have become less enthusiastic about my work.	○	○	○	○	○
10. I just want to do my job and not be bothered.	○	○	○	○	○

11. I doubt the significance of my work.

   ○   ○   ○   ○   ○

12. I have become more cynical about whether my work contributes anything.

   ○   ○   ○   ○   ○

13. I am enthusiastic about my job.

   ○   ○   ○   ○   ○

Q13 The following is a series of factors which may cause some translators to experience work stress. To what extent would you find each factor stressful?

	To a great extent	To a considerable extent	To a moderate extent	To a slight extent	Not applicable
1. Time pressure (tight deadline)	○	○	○	○	○
2. Long working hours	○	○	○	○	○
3. Not enough rest breaks	○	○	○	○	○
4. Too short notice before assignments	○	○	○	○	○
5. Too much work	○	○	○	○	○
6. Too little work	○	○	○	○	○
7. Repetitive or monotonous work	○	○	○	○	○
8. Texts which are difficult to translate due to unfamiliarity of the topic or complexity of the writing	○	○	○	○	○
9. Friends or colleagues asking me about the content of a confidential document	○	○	○	○	○

10. Translating a text containing information that may not be acceptable to the religion or culture of the target audience	○	○	○	○	○
11. Translating a text containing information that I know is untrue or inaccurate	○	○	○	○	○
12. Translating a text on a controversial topic that expresses the opposite opinions that I have	○	○	○	○	○
13. Translating a text containing unfair and discriminatory statement against a minority	○	○	○	○	○
14. Not receiving sufficient background materials	○	○	○	○	○
15. Prolonged periods of extremely intense concentration	○	○	○	○	○
16. Extra work beyond my job description (e.g., liaison with difficult clients, dealing with complaints)	○	○	○	○	○
17. Reformulation and adaptation of the source texts for the target group	○	○	○	○	○

18. Lack of technical support (e.g., slow computer or internet connection, unavailable computer-aided translation tools, problem with software or translation platform)	○	○	○	○	○
19. Imposition of certain technologies (e.g., unfamiliar computer-aided translation tools)	○	○	○	○	○
20. Miscommunication with clients	○	○	○	○	○
21. Actual and perceived lack of skills	○	○	○	○	○
22. Lack of career opportunities	○	○	○	○	○
23. Inadequate training	○	○	○	○	○
24. Others' lack of consideration and appreciation of my work (e.g., complexity and technicality of the tasks involved)	○	○	○	○	○
25. Lack of autonomy	○	○	○	○	○

26. Uncertainty about my future   ○   ○   ○   ○   ○

27. Lack of job security   ○   ○   ○   ○   ○

Q14 Think of your job overall. Select "Yes" if it describes your job most of the time, "No" if it does not describe your job, and "Don't know" if you cannot decide.

	Yes	No	Don't know
1. Demanding	○	○	○
2. Calm	○	○	○
3. Relaxed	○	○	○
4. Under control	○	○	○
5. Comfortable	○	○	○
6. Smooth running	○	○	○
7. Makes me feel content	○	○	○

Q15 To better understand the impact of job-related factors on your overall wellbeing, please indicate if you have experienced any of the following health complaints within the past year.

	Yes	No
1. Heart disease or condition	○	○
2. Back problems	○	○
3. Respiratory or lung problems	○	○
4. High blood pressure	○	○
5. Severe headaches	○	○
6. Ulcer	○	○
7. Shortness of breath upon exerting myself	○	○
8. Frequent headaches	○	○
9. Difficulty falling asleep or staying asleep	○	○
10. Nightmares	○	○

11. Frequent stomach pains	○	○
12. Feel exhausted for no good reason	○	○
13. Frequent colds	○	○
14. Worsening eyesight	○	○
15. Repetitive Strain Injury (e.g., soreness, tingling or discomfort in the neck, arms, wrists, fingers or shoulders)	○	○

Appendix B – Main Study Questionnaire

We would like to begin by asking you a few questions about your personal background and demographic characteristics. Please read each item and select the option that best describes you.
Q1 What is your gender?

◯ Male

◯ Female

◯ Gender diverse

Q2 What is your age? _____

Q3 Please select a statement that best describes your educational background and work experience in translation/interpreting.

◯ I am a professional translator/interpreter (one who practices translation/interpreting as a

professional service).

◯ I am a student working toward a degree in Translation/Interpreting Studies.

◯ I am bilingual without a degree in Translation/Interpreting Studies and do not work as a paid

translator/interpreter.

◯ None of the above (please specify) _____

Q4 As a(n) translator/interpreter, what are your working languages?

☐   Chinese

☐   English

☐   French

☐   Italian

☐ Japanese

☐ Korean

☐ Russian

☐ Spanish

☐ Other, please specify _____

Q5 In the response phase of COVID-19, did you work as a translator, an interpreter, or both?

○ I worked as a translator.

○ I worked as an interpreter.

○ Both

Q6 In the response phase of COVID-19,

	Never	Rarely	Sometimes	Very often	Always
I have unachievable deadlines.	○	○	○	○	○
I experience a marked increase in workload.	○	○	○	○	○
I have felt stressed or anxious due to my job demands.	○	○	○	○	○

Q7 Please indicate the degree to which you agree or disagree with the following statements about your work in the response phase of COVID-19.

	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
1. My work requires a great deal of concentration.	○	○	○	○	○
2. My work requires me to remember many different things.	○	○	○	○	○
3. I must keep my mind on my work at all times.	○	○	○	○	○
4. I can take it easy and still get my work done.	○	○	○	○	○
5. I can let my mind wander and still do the work.	○	○	○	○	○

	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree

Q8 The next few items are concerned with various aspects of your work activities. Please indicate the extent to which you experienced each aspect when doing translation/interpreting in the response phase of COVID-19.

	Hardly Any	A Little	Some	A Lot	A Great Deal
1. How much slowdown in the workload do you experience?	○	○	○	○	○
2. How much time do you have to think and contemplate?	○	○	○	○	○
3. How much workload do you have?	○	○	○	○	○
4. What quantity of work do others expect you to do?	○	○	○	○	○
5. How much time do you have to do all your work?	○	○	○	○	○
6. How many projects, assignments, or tasks do you have?	○	○	○	○	○
7. How many lulls between heavy workload periods do you have?	○	○	○	○	○

Q9 When doing translation/interpreting in the response phase of COVID-19,

	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
1. My work kept me from my family activities more than I would like.	○	○	○	○	○
2. The time I must devote to my work kept me from participating equally in household responsibilities and activities.	○	○	○	○	○
3. I had to miss family activities due to the amount of time I must spend on work responsibilities.	○	○	○	○	○

Q10 When doing translation/interpreting in the response phase of COVID-19,

	Never	Rarely	Sometimes	Very often	Always
1. When I got home from work, I was too frazzled to participate in family activities/ responsibilities.	○	○	○	○	○
2. I was so emotionally drained when I got home from work that it prevented me from contributing to my family.	○	○	○	○	○
3. Due to all the pressures at work, when I came home, I was too stressed to do the things I enjoyed.	○	○	○	○	○

Q11 Think of your work in COVID-19. All in all, what is it like most of time? Select Yes, No, or Don't know for each word or phrase below.

	Yes	No	Don't know
1. Good	○	○	○
2. Undesirable	○	○	○
3. Better than most	○	○	○
4. Disagreeable	○	○	○
5. Makes me content	○	○	○
6. Excellent	○	○	○
7. Enjoyable	○	○	○
8. Poor	○	○	○

Q12 Think of your work in COVID-19. Please rate the following statements.

	Never	Rarely	Sometimes	Very often	Always
1. At my work, I felt bursting with energy.	○	○	○	○	○
2. I was enthusiastic about my work.	○	○	○	○	○
3. I was immersed in my work.	○	○	○	○	○

Q13 Did you find your work in the response phase of COVID-19 stressful? For each of the following words and phrases, select "YES" if it describes your work, "NO" if it does not describe your work, and "Don't know" if you cannot decide.

	Yes	No	Don't know
1. Demanding	○	○	○
2. Pressured	○	○	○
3. Hectic	○	○	○
4. Calm	○	○	○
5. Relaxed	○	○	○
6. Many things stressful	○	○	○
7. Pushed	○	○	○
8. Irritating	○	○	○
9. Under control	○	○	○
10. Nerve-wracking	○	○	○

11. Hassled	○	○	○
12. Comfortable	○	○	○
13. More stressful than I'd like	○	○	○
14. Smooth running	○	○	○
15. Overwhelming	○	○	○

Q14 Using the scale below to indicate how often, if ever, you have experienced these feelings since the outbreak of COVID-19 in December 2019.

	Never	Rarely	Sometimes	Very often	Always
1. I feel emotionally drained from my work.	○	○	○	○	○
2. I feel used up at the end of the workday.	○	○	○	○	○
3. I feel tired when I get up in the morning and have to face another day on the work.	○	○	○	○	○
4. Working all day is really a strain for me.	○	○	○	○	○
5. I feel burned out from my work.	○	○	○	○	○
6. I have become less interested in my work since I started this work.	○	○	○	○	○
7. I have become less enthusiastic about my work.	○	○	○	○	○
8. I just want to do my work and not be bothered.	○	○	○	○	○
9. I doubt the significance of my work.	○	○	○	○	○
10. I have become more cynical about whether my work contributes anything.	○	○	○	○	○

Q15 Since the outbreak of COVID-19 in December 2019,

	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
1. My team took pride in my accomplishments at work.	○	○	○	○	○
2. My team really cared about my well-being.	○	○	○	○	○
3. My team valued my contribution to its well-being.	○	○	○	○	○
4. My team strongly considered my goals and values.	○	○	○	○	○
5. My team was willing to help me when I need a special favour.	○	○	○	○	○

Q16 The next questions ask whether you have experienced any health complaints as a result of doing translation/interpreting in the response phase of COVID-19. Consider each statement carefully and indicate whether or not you have experienced any of these problems below.

	Yes	No
1. Heart disease or condition	○	○
2. Back problems	○	○
3. Respiratory or lung problems	○	○
4. High blood pressure	○	○
5. Severe headaches	○	○
6. Ulcer	○	○
7. Shortness of breath upon exerting myself	○	○
8. Frequent headaches	○	○
9. Difficulty falling asleep or staying asleep	○	○
10. Nightmares	○	○

11. Frequent stomach pains	○	○
12. Feel exhausted for no good reason	○	○
13. Frequent colds	○	○
14. Shoulder or neck problems	○	○
15. Bumps and bruises	○	○
16. Repetitive motion injuries (e.g., Tenosynovitis, Carpal Tunnel Syndrome)	○	○
17. Skin problems	○	○
18. Hearing problems	○	○
19. Wrist problems	○	○
20. Eye irritation	○	○
21. Hand/finger injury	○	○

22. Joint problems ○ ○

23. Other problems (please specify) ○ ○

Q17 The following is a series of factors which may cause some translators/interpreters to experience work stress. To what extent did you find each factor stressful in the response phase of COVID-19?

	Not at all	To a slight extent	To a moderate extent	To a considerable extent	To a great extent
1. Time pressure (tight deadline)	○	○	○	○	○
2. Long working hours	○	○	○	○	○
3. Not enough rest breaks	○	○	○	○	○
4. Too short notice before assignments	○	○	○	○	○
5. Too much work	○	○	○	○	○
6. Repetitive or monotonous work	○	○	○	○	○
7. Information which is difficult to translate/interpret due to unfamiliarity of the topic or complexity	○	○	○	○	○
8. Friends or colleagues asking me about the content of a confidential document	○	○	○	○	○
9. Translating/interpreting information that may not be acceptable to the religion or culture of the target audience	○	○	○	○	○

10. Translating/interpreting information that I know is untrue or inaccurate	○	○	○	○	○
11. Translating/interpreting a controversial topic that expresses the opposite opinions that I have	○	○	○	○	○
12. Translating/interpreting unfair and discriminatory statement against a minority	○	○	○	○	○
13. Not receiving sufficient background materials	○	○	○	○	○
14. Prolonged periods of extremely intense concentration	○	○	○	○	○
15. Extra work beyond my job description (e.g., liaison with difficult clients, dealing with complaints)	○	○	○	○	○
16. Reformulation and adaptation of source information for the target group	○	○	○	○	○
17. Lack of technical support (e.g., slow computer or internet connection, unavailable computer-aided translation/interpreting tools, problem with software or translation platform)	○	○	○	○	○

18. Imposition of certain technologies (e.g., unfamiliar computer-aided translation/interpreting tools)	○	○	○	○	○
19. Miscommunication with clients/colleagues	○	○	○	○	○
20. Actual and perceived lack of skills	○	○	○	○	○
21. Inadequate training	○	○	○	○	○
22. Others' lack of consideration and appreciation of my work (e.g., complexity and technicality of the tasks involved)	○	○	○	○	○

Q18 The following is a series of factors related to job satisfaction. To what extend are you satisfied/dissatisfied with the following factors in the response phase of COVID-19?

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1. The amount of work I have	○	○	○	○	○
2. Degree of work responsibility	○	○	○	○	○
3. End-use of the translated text/interpretation	○	○	○	○	○
4. Exposure to a variety of subjects	○	○	○	○	○
5. Flexibility of work schedule	○	○	○	○	○
6. Meeting people (interesting colleagues, clients, etc.)	○	○	○	○	○
7. Others' respect and appreciation	○	○	○	○	○
8. Continuous learning, intellectual challenge	○	○	○	○	○
9. Socioeconomic status	○	○	○	○	○
10. Possibility of career progression due to this work experience	○	○	○	○	○

Q19 Would you be interested in participating in our further study which is an online interview?
If you tick "yes" you will be redirected to another website for you to provide your contact information which will be dissociated from the questionnaire response.

○ Yes

○ No

Q20 Please enter your email address to receive details of the further study:

_____

Appendix C – Codebook of Coding Definitions

Reference number	Code name	Description	Number of sources coded
1	Task description	This is a tree code collecting together any code in the data set directly relating to the description of the translation or interpreting task. This is a provisional code.	24
2	Translation tasks	Reference by the participant to the task in written form. This is a descriptive code.	18
3	Interpreting tasks	Reference by the participant to the task in oral form. This is a descriptive code.	13
4	Language pair	Reference by the participant to the working languages of the task. This is an attribute code.	10
5	Duration	Reference by the participant to the duration of their work. This is an attribute code.	15
6	Work-related stress	This is a tree code collecting together any code in the data set directly relating to work-related stress. This is a provisional code.	24
7	Job demands	This is a tree code collecting together any code in the data set directly relating to the job demands involved in the task. This is a provisional code.	25
8	Time pressure	Any instance in a participant interview where the participant explicitly mentions time pressure as a job demand. This is a provisional code.	12
9	Workload	Any instance in a participant interview where the participant explicitly mentions the amount of workload of the task. This is a provisional code.	7
10	Emotional demands	Any instance in a participant interview where the participant explicitly mentions their emotions when carrying out the task. This is a provisional code.	23
11	Hindrance stressors	Reference by the participant to the stressors that require effort and energy but interfere with performance or goals. This is a concept code.	10
12	Challenge stressors	Reference by the participant to the stressors that require effort and energy but facilitate performance. This is a concept code.	21
13	Ethical issues	The participant makes reference to the presence of ethical issues in the translation/interpreting process. This is a provisional code.	15

14	Technical issues	The participant makes reference to the technical issues that impede their work progress. This is a provisional code.	7
15	Job resources	This is a tree code collecting together any code in the data set directly relating to the existing and potential job resources that facilitate performance or goals. This is a provisional code.	261
16	Personal resources	Reference by the participant to the personal resources they have. This is a provisional code.	75
17	Organisational support	Reference by the participant to the organisational resources that contribute to performance. This is a provisional code.	51
18	Translation tools	This is a tree code collecting together any code in the data set directly relating to the translation tools that the participants have mentioned. This is a provisional code.	113
19	Translation tools – advantages	Reference by the participant to the advantages of the translation tools that they have used. This is a provisional code.	34
20	Translation tools – disadvantages	Reference by the participant to the disadvantages of the translation tools that they have used. This is a provisional code.	32
21	Other tools	Reference by the participant to the translation tools that they wish to use in the future. This is a provisional code.	18
22	Self-efficacy	Reference by the participant to the belief in their ability to accomplish the translation/interpreting task. This is a concept code.	29
23	Outcomes	This is a tree code collecting together any code in the data set directly relating to the positive and negative outcomes that the translation/interpreting work experience has caused. This is a provisional code.	221
24	Success factors	The participant makes reference to the success factors that result in the accomplishment of the translation/interpreting task. This is a descriptive code.	7
25	Positive aspects	The participant makes reference to the positive aspects that have been brought by engaging in the translation/interpreting task. This is a value code.	88
26	Negative aspects	The participant makes reference to the negative aspects that have been brought about by engaging in the translation/interpreting task. This is a value code.	25

27	Unfamiliar with the content	Any instance in a participant interview where the participant explicitly mentions unfamiliarity with the translation/interpreting content as one of the job demands. This is an *in vivo* code.	24
28	Project management	Any instance in a participant interview where the participant explicitly mentions project management as one of the job demands. This is a descriptive code.	4
29	Lack of training	Any instance in a participant interview where the participant explicitly mentions the lack of training as one of the job demands. This is a holistic code.	2
30	Emotional outcomes	Any instance in a participant interview where the participant explicitly mentions negative emotional outcomes led by engaging in the translation/interpreting task. This is a provisional code.	6
31	Physical outcomes	Any instance in a participant interview where the participant explicitly mentions negative physical outcomes led by engaging in the translation/interpreting task. This is a descriptive code.	6
32	Lessons learned	Any instance in a participant interview where the participant explicitly mentions what they have learned from engaging in the translation/interpreting task. This is a holistic code.	13
33	Feedback	Any instance in a participant interview where the participant explicitly mentions the feedback they have obtained as one of the positive aspects. This is an *in vivo* code.	13
34	Improvements	Any instance in a participant interview where the participant explicitly mentions the improvements that they wish to make to facilitate the performance or goals. This is a concept code.	22
35	Uncertainties	Any instance in a participant interview where the participant explicitly mentions the uncertainties as one of the job demands. This is an *in vivo* code.	6
36	Impacts on daily routine	The participant makes reference to the impacts of engaging in the translation/interpreting task on their daily routine. This is a provisional code.	17
37	Feelings and thoughts	The participant makes reference to the feelings and thoughts about the translation/interpreting work experience. This is a value code.	26

38	Differences from routine work	The participant makes reference to the differences between crisis translation/interpreting and routine translation/interpreting work. This is a provisional code.	26
39	Professional work stress	Reference by the participants who are professional translators/interpreters to work-related stress. This is a provisional code.	25
40	Student work stress	Reference by the participants who are student translators/interpreters to work-related stress. This is a provisional code.	12
41	Bilingual work stress	Reference by the participants who are bilinguals to work-related stress. This is a provisional code.	14
42	Terminology	Any instance in a participant interview where the participant explicitly mentions terminology as an aspect of unfamiliarity with the content under the category of job demands. This is an *in vivo* code.	10
43	Psychological needs	This is a tree code collecting together any code in the data set directly relating to the psychological needs that the participants have or have not met from the translation/interpreting work experience. This is a concept code.	162
44	Autonomy	Reference by the participant to the degree of autonomy they have when carrying out the translation/interpreting task. This is a subcode code.	43
45	Competence	Reference by the participant to the sense of competence when engaging in the translation/interpreting task. This is a subcode.	59
46	Relatedness	Reference by the participant to the degree of relatedness with other team members. This is a subcode.	60