Stress Management with A Virtual Health Coach

Digital humans are becoming increasingly involved in healthcare. However, as a new and unfamiliar technology, it is crucial to understand how people's trust in digital humans can be helped. Trust is a fundamental element of healthcare, with research demonstrating that trust influences patient outcomes through numerous pathways (Street et al., 2009). In particular, patient trust in their provider has been linked to improved treatment adherence, which is strongly associated with more positive medical and psychosocial outcomes for patients (Young et al., 2017; Arbuthnott & Sharpe, 2009). The present study aims to understand how trust and adherence in a digital human coach can be enhanced to improve patient outcomes. This research will be expanding on an extensive body of research that suggests that patient-provider communication has an important impact on these factors. Specifically, this study focuses on the effects of collaborative communication practices such as negotiated treatment plans.

Identifying effective communication practices for digital humans can be achieved by studying those used by healthcare professionals (Johanson et al., 2021). Good communication is at the core of providing successful healthcare. There is substantial evidence that patient-provider communication influences patient treatment adherence, with patients more than twice as likely to be adherent to treatment if their physician communicates well (Haskard-Zolnierek & DiMatteo, 2009). However, the mechanisms by which communication practices influence treatment adherence are still unclear. Current research suggests that favourable adherence is related to an enhanced therapeutic alliance facilitated by effective communication (Thompson & McCabe, 2012). In their study, Young et al. also establish trust as having a mediating effect on the relationship between patient-provider communication and

adherence (2017). This research demonstrates that in order to improve patient treatment adherence and health outcomes, communication during the consultation must develop trust.

Collaborative care is becoming more commonplace in modern healthcare. This model of care involves both the patient and their physician as active participants in the delivery of healthcare (Arbuthnott & Sharpe, 2009). The negotiated treatment plan is one collaborative communication practice, in which both parties work together to develop a regimen tailored to the situation and preferences of the patient, while still reflecting the recommendations of their physician (Gask & Usherwood, 2002). Empirical evidence regarding the outcomes associated with negotiated treatment plans is limited. Promising results from a study by Clark et al. show that women with asthma who negotiated their treatment plan reported more adherence to prescribed medicine than those without (2012). This study also suggested that findings of favourable adherence reflected an enhanced therapeutic alliance between the patient and their physician, developed through the negotiation process. Supporting literature describes that the joint effort in determining the treatment plan facilitates more effective trust-building in the patient-physician relationship within the brief time constraints of a consultation (Thompson & McCabe, 2012). More research is needed to fully understand whether negotiated treatment plans are a collaborative communication practice that may help patient adherence through enhanced trust.

The development and testing of assistive digital humans is a growing research scope that aims to support patients and also ease pressure on healthcare systems. In particular, this technology can augment mental health care by providing accessible support to people needing help with psychological factors such as stress. People do not always seek professional guidance for their stress, nor are they currently able to easily access these services due to shortages in mental health clinicians. However, digital humans will need to

display appropriate clinical communication skills to ensure that patients find them useful and trustworthy (Johanson et al., 2021). Previous research concerning human-robot interactions has investigated a range of verbal and non-verbal communication practices that may enhance trust, including empathy statements, self-disclosure, head nodding and smiling (Johanson et al., 2021; 2022). Mann et al. have also shown that people are more inclined to trust physically embodied technologies (2015). This study found that participants were more likely to follow instructions provided by a robot than by a tablet. These results support the use of a digital human delivering a treatment plan for assessing adherence outcomes. Loveys et al. also observed displayed high behavioural engagement with a one-week digital human intervention for loneliness and stress (2021). This study established digital humans as a feasible, acceptable and effective way to deliver stress interventions (Loveys et al., 2021). This conclusion has since been corroborated by further research. Loveys et al. found digital humans were as effective as teletherapy or an e-manual for delivering CBSM and improved negative affect, relaxation and psychological and physiological stress (2022). A University of Auckland Master's study found that digital humans were equally effective at significantly reducing stress as a human tele-therapist and a chatbot (Karihy, 2022). Notably, the virtual human was associated with higher adherence to stress management homework than the other conditions (Karihy, 2022). Finally, Nelekar et al. also reported significant reductions in stress in students that engaged with a digital human intervention that provided study tips based on their individual beliefs and goals (2022). This study also noted that the participants who received personalised explanations reported higher trust in the digital human and significant reductions in their stress levels. These findings suggest that negotiating a treatment plan with a digital human could similarly enhance patient trust and outcomes.

As technology becomes increasingly implicated in healthcare, ensuring that digital humans communicate effectively to promote trust and influence positive patient outcomes is

critical. Previous research shows that good patient-provider communication is strongly associated with adherence through the mediating effect of trust (Clark, et al., 2012; Young et al., 2017). This study will focus on negotiated treatment plans and expand on the limited evidence regarding the outcomes associated with this practice. Research findings could potentially contribute new knowledge about how adherence can be enhanced and thus help the improvement of patient health outcomes. Furthermore, study results will further the development of digital humans to support both patients and providers in healthcare.

Aims and Hypotheses

The present study aims to investigate whether a negotiated stress management plan delivered by a virtual health coach can enhance patient treatment adherence. This study will also investigate the effects on trust, satisfaction and stress. A randomised trial will be conducted in which participants are allocated to either a virtual health coach that uses collaborative communication to negotiate a treatment plan or one that prescribes a treatment plan without negotiation.

Based on previous findings, it is hypothesized that participants who negotiate their stress management plan with the virtual health coach will be more adherent compared to participants that are only prescribed their treatment. Furthermore, participants allocated to the negotiation condition will report greater trust and satisfaction in the virtual health coach. Finally, it is also hypothesised that participants that are more adherent to their treatment plan will report improved levels of stress from baseline to follow-up.

Method

Study Design

This study will be a randomised controlled trial in which participants are randomly allocated to a virtual health coach that either negotiates or prescribes a stress management

plan to compare the effects on their adherence. Participants will be advised to engage in their stress management plan for 15-30 minutes every day for 4 weeks, although it is anticipated that there will be considerable non-adherence. Participants will complete brief questionnaires powered by Qualtrics at three stages: before the consultation, immediately after and at 4 weeks follow-up.

The present study will be conducted in collaboration with Kate Loveys, a Post-Doctoral Research Fellow at Soul Machines Ltd. The virtual health coach will be designed and programmed using software provided by Soul Machines Ltd and there is no license fee. This software is responsive to all ethnicities in terms of speech and emotion recognition. The virtual health coach will also have a New Zealand accent and use te reo to greet the participant ("Kia ora") and sign off the consultation (Ngā Mihi). Soul Machines Ltd did not commission this research or have any input in the study design. Data will not be collected during the consultation, nor will Soul Machines Ltd have access to, store or use any data that is collected throughout the study.

This study will proceed in an online environment. Participants will access their consultation with their virtual health coach on a website and complete questionnaires via Qualtrics. The consultation sessions will not be recorded by any means. The virtual health coach will provide resources for participants' stress management plan on a website that they must register to, and each time they log in this will be recorded. This website will be specifically designed for the study and will only be available to participants. Participants' data collected on the website will only be accessible to and used by researchers.

This study involves a placebo tailoring method. Participants will not be informed of the different conditions or their allocated group. They will only be told that the study is investigating the usefulness of a virtual health coach in helping people with stress management. This method ensures that participants do not adhere to their stress management plan differently because they know this factor is being assessed. Furthermore, all participants

will receive the same stress management plan but it will be presented differently in each condition. The reason all participants are given the same recommendations is that any variation would create confounding factors (e.g. participants may be more willing to adhere to one exercise than another) that would affect the outcomes of the study. The virtual health coach will give the experimental group a plan that displays a range of exercises with their recommendations circled, to reinforce the perception that these recommendations are specific to the participant. In comparison, the control group will receive a copy of their treatment plan that only displays their recommended exercises. This approach is based on a study conducted by Bashyam et al. in which similar placebo-tailored treatment plans improved patient satisfaction, perception of personalisation and willingness to adhere (2020).

Participants will receive a debriefing email that explains this method and why it was necessary immediately after they have completed the follow-up questionnaires at 4 weeks post-consultation. Debriefing will also inform participants that they may contact the researchers to ask any questions or to withdraw their data if they are experiencing distress and discomfort from learning that their data was collected through deception.

Eligibility Criteria

The present study will recruit participants aged 18 or over and who self-identify as stressed. Participants should be able to speak, read and write in English. Participants will also need their own connected device such as a computer, mobile phone, or tablet.

Recruitment

Participants will be recruited from within The University of Auckland via posters, email lists and online advertising. The advertisements for this study will encourage people to participate if they are feeling stressed. Invitations to participate will also be sent to Tuākana programs to prioritise the inclusion of Māori and Pacific participants proportional to the NZ population. Based on the University of Auckland's demography, the study will aim to recruit

at least 11 participants identifying as Māori. Those who respond to advertisements will be sent a participant information sheet and be asked to complete a questionnaire assessing whether they meet the eligibility criteria of the study. Respondents will be given the opportunity to discuss their participation with their whānau.

Sample Size

The sample size for this study was calculated using G*Power software. With a power level of .80 and an alpha level of .05, this software calculated that a total sample size of 140 is required to find an effect size of $d = 0.48$. The present research is novel, and thus, estimates of expected effect size were challenging. The expected effect size of $d = 0.48$ is based on data from a previous study using the placebo tailoring method (Bashyam et al., 2020). Clark et al. also observed a similar effect size in their investigation of self-reported adherence to negotiated treatment plans in a sample of women with asthma (2012). This study will recruit 15 additional participants to accommodate potential drop-outs or missing data. Therefore 155 participants will be recruited.

Study Outcomes

The primary outcome of this study will be participants' adherence to their stress-management plans following their consultation with the virtual health coach. This outcome will be assessed through two forms of measurement. Objective measures of their behaviour will be obtained when participants register to the website to access their treatment resources, and by tracking when they access the website and the audio tracks. Treatment adherence will also be assessed by a brief, self-report and open-response questionnaire in which participants will be asked to report how frequently they participated in their stress-management exercises at 4 weeks follow-up.

The secondary outcomes of this study will be participants' trust in and satisfaction with the virtual health coach. Trust in the virtual health coach will be measured using an adapted version of the Checklist for Trust between People and Automation (Jian et al., 2000). Satisfaction with the virtual health coach will be measured using an adapted version of the Scale of Patient Overall Satisfaction with Primary Care Physicians (Hojat et al., 2011). These questionnaires will be administered immediately after participants' consultation with their virtual health coach.

In addition, this study will also assess the impact on participants' stress levels. This variable will be measured using the Perceived Stress Scale (PSS-10) both before and 4 weeks after their consultation with the virtual health coach.

Study Procedure

The present study will proceed completely online. The participants will be told that the study is investigating the usefulness of a virtual health coach in helping people with stress management. Participation will be incentivised by informing potential participants that their involvement in the study will enter them into the draw to win an iPad.

Participants interested in the study will respond to advertisements by registering their details online. They will then receive an email that contains a participant information sheet with the study details and a questionnaire that assesses whether they meet the eligibility criteria of the study. Those that meet these criteria will then be invited to begin the study by first providing their consent and then completing two online questionnaires on Qualtrics. The initial questionnaire will collect further demographic details (age, gender, ethnicity, employment, and current stress management techniques) and the Perceived Stress Scale (PSS-10) will evaluate their stress levels over the last 4 weeks. Participants will be directed to their consultation with the virtual health coach once they have completed these

questionnaires. Participants will be randomly allocated to the control or experimental condition for their consultation.

The experimental condition involves the virtual health coach negotiating a stress management plan with the participant. The consultation script follows the framework outlined by Gask & Underwood (2002). The health coach first ascertains the participant's expectations about their treatment by asking how much they know about stress management. The health coach then suggests two stress management techniques for the participant: physical and relaxation exercises. For both approaches, the health coach elicits the participant's preferences by asking about the type of outcome they would hope to gain from these techniques. In response to the participants' preferences, the health coach will recommend 15 minutes of mindful walking five times a week and 10 minutes of progressive muscle relaxation exercises once a day. Finally, the health coach will check with the participant to ensure they are clear about their treatment plan and advise on contingency management (e.g. "If you miss a day, just do it the next day").

The controlled consultation involves the virtual health coach prescribing the stress management plan to the participant. In this condition, the virtual health coach will not ask for input from the participant regarding their expectations or preferences. Further, the health coach will not check whether participants understand their treatment plan or offer any contingency management advice. Aside from these key differences, the virtual health coach will follow a similar script and recommend the same stress management plan as the experimental condition. In addition, both conditions are designed to take an equal amount of time and contain the same amount of participant interaction with the virtual health coach.

At the end of the consultation, the virtual health coach will direct participants to a website with the resources for their stress management plan. Participants will also complete measures for trust and satisfaction immediately after the consultation. Furthermore, participants will have the opportunity to provide additional comments about the virtual health

coach through open response. Participating in the consultation and completing questionnaires is expected to take no longer than 30 minutes. Participants will also be provided with a list of resources and services if they need further support.

As part of their stress management plan, participants will be recommended to engage in mindful walking for 15 minutes, 5 times a week. This exercise involves walking in nature while deeply experiencing one's surroundings and being physically present rather than focusing on a destination (Kabat-Zinn, 2017). In their systematic review, Kondo et al. assert that studies using self-report measures and stress biomarkers provide convincing evidence that time spent in outdoor environments reduces the experience of stress (2018). In particular, most studies that asked participants to walk through a forest or a park for 15-30 minutes demonstrated notable reductions in stress measures. Physical exercise is also a known moderator of stress (Flueckiger et al., 2016). The present study combines this practice with Kabat-Zinn's walking meditation resources (2017). Kabat-Zinn leads an extensive body of literature regarding mindfulness and developed the evidence-based mindfulness-based stress reduction (MBSR) program. Participants will walk outside while listening to an audio track that guides them through mindfulness techniques.

Participants will also be recommended to engage in progressive muscle relaxation (PMR) exercises for 10 minutes, once a day. PMR involves tensing and relaxing the muscle groups, one at a time. This relaxation technique helps people manage the physical effects of stress and in doing so, relax their minds. There is substantial evidence supporting the efficacy of progressive muscle relaxation as a technique for reducing stress, with meta-analyses showing greater effect sizes for PMR than other techniques (Manzoni et al., 2008).

The website will provide participants with audio tracks to listen to while completing mindful walking and progressive muscle relaxation exercises. There will also be additional supporting materials for stress management regarding healthy eating and sleeping to provide participants with an evidence-based plan. If participants do not wish to follow the

recommendations provided by the virtual health coach, they can simply report on the follow-up questionnaire that they did not perform any of the activities.

At 4 weeks post consultation, participants will be emailed a link to a follow-up questionnaire which will ask them to report their adherence to the treatment plan. Participants will also complete the PSS-10 a second time. Completing these follow-up questionnaires is expected to take no longer than 15 minutes. Up to two reminders to complete the follow-up questionnaires will be sent via text message. Immediately after they have completed the final questionnaire, participants will receive a debriefing email that explains the study's method and why deception was necessary. Participants may also contact the researchers to ask any questions or to withdraw their data if they are experiencing distress and discomfort from learning that their data was collected through deception.

Measures

Initial Questionnaire

Prior to their consultation with the virtual health coach, participants will complete a demographics questionnaire to gain information on their gender, age and ethnicity, and employment/student status. Participants will also be asked to indicate a baseline level of engagement in exercise and stress-management techniques through open response.

Trust Scale

Participants' trust in their virtual health coach will be measured using an adapted version of the Checklist for Trust between People and Automation. Jian et al. originally developed the scale as a measure of user trust in automated systems (2000). There is strong evidence for the validity of this scale (Spain et al., 2008). This scale has also been used in

research to determine user trust in virtual humans wherein the items were altered to describe an "instructor" rather than a "system" (Chiou et al., 2020; Johanson et al., 2022).

The present study has used the word "health coach" in this scale. Further changes to increase the relevance of the scale to the research objectives involve the removal of item 12 ("I am familiar with the health coach") and the addition of a new item ("I trust the techniques the health coach recommended"). This scale asks respondents to rate their agreement with statements about the virtual health coach using a 7-point Likert scale ranging from "Not at all" to "Extremely".

Satisfaction Scale

Participants' satisfaction with their virtual health coach will be measured using an adapted version of the validated Scale of Patient Overall Satisfaction with Primary Care Physicians (Hojat et al., 2011). This scale asks respondents to rate their agreement with statements about their physician using a 7-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree". The sum of item scores provides a total satisfaction score.

In their recent study, Johanson et al. adapted this scale to measure user satisfaction with a robot nurse (2022). The present study has made further adaptations to make the scale relevant to a different healthcare interaction. Thus, a "health coach" is referred to rather than a "doctor", and item 2 refers to "stress management" instead of a "health check". In addition, three items have been removed ("I would like my health coach to be available at my medical clinic", "My health coach cares about me as a person", "My health coach listens to me"). Finally, three items were added to assess whether participants perceived negotiation with their virtual health coach regarding their treatment plan ("I worked together with my health coach to develop my treatment plan", "My health coach took my preferences into account", "My health coach included me in the decision-making for my management plan").

Perceived Stress Scale (PSS-10)

The Perceived Stress Scale is a 10-item, self-report questionnaire designed to assess the degree to which an individual has perceived life as unpredictable, uncontrollable and overloading in the past month (Cohen et al., 1983). Respondents rate how frequently they experience the thoughts or feelings described in each item on a 5-point scale from 0 ("Never") to 4 ("Very Often"). In the present study, participants will complete this scale prior to their consultation with the virtual health coach and at a 4-week follow-up session. The scores from both time points will be compared to assess whether participants experience changes in their stress levels after the intervention.

Adherence

Objective measures of participant adherence will be obtained when participants register to the website in order to access their treatment resources. Their interaction with the audio guides for mindful walking and progressive muscle relaxation exercises will also be tracked to assess their adherence to their treatment plan.

The present study will also obtain measures of adherence through a brief, self-report questionnaire that is administered at the 4-week follow-up session. Through open response, participants will be asked to report how frequently they participated in mindful walking and progressive muscle relaxation exercises, if at all.

Additional Comments

Directly following the consultation, this study will also provide participants with the opportunity to provide additional comments regarding the virtual health coach through open response. At follow-up, participants are also able to discuss how useful they found mindful walking and progressive muscle relaxation through open response.

Statistical Analysis

The present study will use IBM SPSS software to analyse quantitative data. Independent t-tests will be conducted for all primary outcome measures (i.e. trust, satisfaction, adherence data from the website and self-reported adherence) to identify differences between the control and experimental groups. A mixed ANOVA analysis will be conducted to compare stress levels evaluated at baseline and follow-up across both groups.

Results will be considered statistically significant if p-values are less than .05. The results will be analysed and reported as described in the consolidated standards of reporting trial (CONSORT) guidelines to maintain transparency.

Ethics

The study will only commence after receiving ethics approval from The Auckland Health Research and Ethics Committee.

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Appendix A.

Placebo Tailored Condition Script

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Introduction:

Health Coach: Kia ora, my name is Sam, and I will be your health coach today. What is your name?

Patient gives name.

Health Coach: Nice to meet you ___. I understand you have been feeling stressed lately.

Can you please tell me how stressed you are feeling from 1 (not at all stressed) to 10 (extremely stressed)?

- *Display on Screen:* 1–10 Scale

Patient responds with a number from 1 to 10. **Health Coach**: (Response depends on number chosen by participant)

      1-3: That's great to hear.

      4-7: Thanks for letting me know.

      8-10: Sorry to hear that.

Health Coach: In our session, I would like to work with you so together we can create a plan for how we can manage your stress, does that sound good? *Patient responds.*

Health Coach: First, how much do you know about stress management?

- *Display on Screen:*

    Option A: Not Much   **Option B:** A Little Bit   **Option C:** Quite A Lot

Health Coach: Well, stress management techniques can really help to make you feel on top of things. It's normal to encounter stressful situations in life and there are some helpful techniques to make sure you are in the best shape to deal with stressful events that come along.

Plan Development:

Health Coach: I can suggest some techniques that might help you manage your stress levels.

The first suggestion is <u>physical exercise</u>. This technique can take your mind off stressful things, build fitness and improve your mood.

There are several different types of physical exercise, and I would like to find the best option for you by asking about your preferences. What kind of outcome are you hoping for from physical exercise?

- *Display on Screen:*

Option A: Pump Up Endorphins   **Option B**: Improve Mood

Option C: Buffer Negative Effects of Stress   **Option D**: All of the Above

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NB: These are all demonstrated benefits of walking, walking in nature, and mindfulness (Flueckiger et al., 2016; Kondo et al., 2018; Grossman et al., 2004).

In that case, I recommend <u>mindful walking</u> for you. This exercise involves walking for 15 minutes while you deeply experience your surroundings and feel physically present. Mindful walking works best when you practice it in nature. I will provide you with a guided audio track for you to listen to while you walk.

Health Coach: The second suggestion is some <u>relaxation exercises</u>. These techniques activate the body's natural relaxation response by slowing your breathing, reducing muscle tension, and lowering your blood pressure**.** Practising relaxation helps counter the negative effects of the fight-or-flight response brought on by stress.

There are several types of relaxation exercises, and I would like to find the best option for you by asking about your preferences. What kind of outcome are you hoping for from these techniques?

- *Display on Screen:*

Option A: Increase Ability to Cope   **Option B**: Reduce Negative Stress Responses

Option C: Improve Quality of Life   **Option D**: All of the Above

Health Coach: In that case, I recommend <u>progressive muscle relaxation exercises</u> for you. This exercise takes 10 minutes. This exercise involves tensing your muscles, then releasing that tension and noticing how your muscles feel when you relax them. I will provide you with an audio track that will guide you through these steps.

Health Coach: Finally, I'd like to tailor the plan to your needs and schedule. How busy are you each week?

- *Display on Screen*:

Option A: Not busy   **Option B**: Moderately busy   **Option C**: Very busy

Health Coach: In that case, I recommend you do the <u>walking five times a week and the progressive muscle relaxation once a day.</u>

Health Coach: Okay, so the plan is to engage in mindful walking five times a week and progressive muscle relaxation once a day.

- *Display on Screen:* **The Placebo Tailored Plan**

Your Treatment Plan			
Physical Exercise	Tai Chi	Yoga	(Mindful Walking)
Exercise Frequency	Once a Week	(5 Times a Week)	Every Day
Relaxation Techniques	(Progressive Muscle Relaxation)	Mindfulness Exercises	Deep Breathing
Relaxation Frequency	2–3 Times a Week	(Once a Day)	Twice a Day

Additional Details:

Walking: Walk outside in a natural environment for 15 minutes while listening to the audio track provided on this website.

Progressive Muscle Relaxation: Listen to the 10 minute audio track provided on this website.

Well-nourished and rested bodies are better prepared to cope with stress, so remember to eat healthy foods and get enough sleep every night.

Health Coach: From 1 to 10, how committed are you to follow this plan?

- *Display on Screen:* 1 (not committed at all) –10 (extremely committed) Scale

Health Coach: I am sure you can do it; I believe in you.

Conclusion:

Health Coach: Do you understand the plan we have made? *Patient Yes/No*.

Health Coach: There are more instructions on the website I will direct you to. You can also talk to the researchers if you have any questions after our talk today.

Health Coach: Okay, you will now see a QR code on the screen. You can scan this code and it will take you to a website which contains your plan and the resources you need for mindful walking and progressive muscle relaxation exercises. Alternatively, you may click the link below to take you to the same website.

You will need to use a username and password in order to access the resources. Just follow the instructions on the website.

It is important to stick to your plan, but if you miss a day, don't give up! Just do it the next day.

Thank you for meeting with me today. My colleagues will get in touch in 4 weeks to review how you get on with these exercises and stress management plan.

If you find these exercises don't suit you, don't worry; there are others you can try. Some of these are listed on the information sheet the researcher will give you.

Thank you for meeting with me today,

Ngā mihi and take care.

Appendix B.

Non-Tailored Condition Script

<u>Introduction</u>:

Health Coach: Kia ora, my name is Sam and I will be your health coach today. What is your name?

Patient gives name.

Health Coach: Nice to meet you ___. I understand you have been feeling stressed lately.

Can you please tell me how stressed you are feeling from 1 (not at all stressed) to 10 (extremely stressed)?

- *Display on Screen:* 1–10 Scale

Patient responds with a number from 1 to 10. **Health Coach**: (Response depends on number chosen by participant)

1-3: That's great to hear.

4-7: Thanks for letting me know.

8-10: Sorry to hear that.

Health Coach: In our session, I will explain how you can manage your stress with different techniques, does that sound good? *Patient responds.*

Not everyone knows what stress management involves, so let me explain.

- *Press OK on Screen*

Stress management techniques can really help to make you feel on top of things. It's normal to encounter stressful situations in life and there are some techniques to make sure you are in the best shape to deal with stressful events that come along.

<u>Plan Development</u>:

Health Coach: I can suggest some techniques that might help you manage your stress levels.

The first suggestion is <u>physical exercise</u>. This technique can take your mind off stressful things, build fitness, and improve your mood.

There are several different types of physical exercise, which can pump up endorphins, improve your mood and buffer the negative effects of stress. Based on evidence, I recommend <u>mindful walking</u>.

- *Press OK on Screen*

Health Coach: This exercise involves walking for 15 minutes while you deeply experience your surroundings and feel physically present. Mindful walking works best when you practice it in nature. I will provide you with a guided audio track for you to listen to while you walk.

Health Coach: The second suggestion is some <u>relaxation exercises</u>. These techniques activate the body's natural relaxation response by slowing your breathing, reducing muscle tension, and lowering your blood pressure**.** Practising relaxation helps counter the negative effects of the fight-or-flight response brought on by stress.

Health Coach: There are several types of relaxation techniques which can increase your ability to cope with stress, reduce negative stress responses, and improve your quality of life. Based on evidence, I recommend <u>progressive muscle relaxation exercises</u>.

- *Press OK on Screen*

Health Coach: This exercise takes 10 minutes. It involves tensing your muscles, then releasing that tension and noticing how your muscles feel when you relax them. I will provide you with an audio track that will guide you through these steps.

Health Coach: There are different options for how frequently you do these techniques. Based on evidence, I recommend you do the <u>walking five times a week and progressive muscle relaxation once a day.</u>

Health Coach: Okay, so the plan is to engage in mindful walking five times a week and progressive muscle relaxation once a day.

- *Display on Screen:* **The Non-Tailored Plan**.

Your Treatment Plan	
Physical Exercise	Mindful Walking
Exercise Frequency	5 Times a Week
Relaxation Techniques	Progressive Muscle Relaxation
Relaxation Frequency	Once a Day

Additional Details:

Walking: Walk outside in a natural environment for 15 minutes while listening to the audio track provided on this website.

Progressive Muscle Relaxation: Listen to the 10 minute audio track provided on this website.

Well-nourished and rested bodies are better prepared to cope with stress, so remember to eat healthy foods and get enough sleep every night.

Health Coach: From 1 to 10, how committed are you to follow this plan?

- *Display on Screen:* 1 (not committed at all) –10 (extremely committed) Scale.

Health Coach: I am sure you can do it, I believe in you.

Conclusion:

Health Coach: Let me repeat the plan just in case you missed something: the plan is to do mindful walking five times a week and progressive muscle relaxation once a day.

Health Coach: Okay, you will now see a QR code on the screen. You can scan this code and it will take you to a website which contains your plan and the resources you need for mindful walking and progressive muscle relaxation exercises. Alternatively, you may also click the link below.

You will need to create a username and password in order to access the resources. Just follow the instructions on the website.

You get the best results when you stick to the recommendations in your plan.

But if you find these exercises don't suit you, don't worry; there are others you can try. Some of these are listed on the information sheet the researcher will give you.

Thank you for meeting with me today,

Ngā mihi and take care.

Appendix C.

Post-Consultation Statement

Please be aware that taking part in the study does not guarantee a reduction in stress management. This tool should not be relied upon to replace current techniques and support structures that you may have in place.

If you need further support, please reach out to the services provided.

For immediate assistance via text or phone, contact 1737, a free 24/7 counselling service. You may also choose to contact Youthline via TXT (234) or Phone (0800 376 633). Check out resources by Health Navigator for more tips about stress management.

University of Auckland Resources:

Health and Counselling Services Ph: 0800 698 427 or Email: uhsinfo@auckland.ac.nz

Puāwaitanga Counselling Ph: 0800 782 999

CALM - Practical Techniques for Managing Stress