

Motives for and Barriers that prevent regular physical activity and exercise

1.0 Introduction/Results

An interview was undertaken and analysed to determine the motives and barriers that may influence Mr X participating in regular physical activity. This was to investigate and encourage initiatives that will improve adherence to exercise whilst considering the individual's lifestyle, personal barriers, likes/dislikes, perception, and exercise participation. Whilst conducting the interview, it became apparent that the mediating factors regulating physical activity was Mr X's occupation, the weather and exercise setting. Mr X expressed knowledge through experience when reflecting on how physical activity contributes to personal benefits *"I have found the positives of physical activity from enjoyment of it and the health benefits. Sometimes when I do a lot of computer work, I get shoulder and neck pain, but I actually find the more exercise I do actually helps that"*. Whilst Mr X expressed throughout the interview that he does not partake in enough exercise, the passion and experience for exercise were demonstrated when Mr X conversed about cycling: *"I like the fact I am going somewhere and that it feels good when you are, it makes me feel healthy", "You're not thinking about the worries within the world, you are just riding your bike" "you are within the here and now"*.

This demonstrated that exercise is a valuable contribution to Mr X lifestyle and wellbeing. However, when asked about meeting the government guidelines for exercise (previously explained), Mr X emphasised *"Nowhere close if I include the two weeks of a month I'm away in work, because my work now involves a lot of computer work rather than physical activity"*. Furthermore, it was highlighted that there is a gym available on the ship. However, this is not a viable alternative, as Mr X explains *"If I was to go to a gym, I would find it very stressful, especially exercising with other people"*. This was in relation to body image and gym environments generating feelings of insecurity. Although working away appears to generate barriers to exercise, Mr X explains when home *"If the weather is good, I will happily go out every day of the week for a 20-30-minute bike ride or up to an hour"*. However, this is weather dependant and implicates Mr X motivation to exercise *"I haven't been out for the last five days. It's tricky this time of year when it is cold outside, Winter is harder to get the motivation"*. Whilst the initial hesitation to exercise in the winter months encouraged physical inactivity Mr X explains *"Once I'm going especially listening to music while I am doing it, I find I get on with it and keep going, not really thinking about anything"*.

The interview contained additional questions regarding how the lockdown pandemic effected adherence to exercise, in which Mr X indicated that *“I could go locally on my bike straight from my door, My exercise I do partake in is generally outside, so no it has not been affected”*.

Whilst Mr X is aware of personal barriers that prevent adherence to exercise, he also aspires to achieve personal goals stating *“ I would like to get rid of my belly, increase my upper body fitness, just be generally healthier and more alertness that being fitter achieves”*

2.0 Results relating to previous research

Within the results Mr X postulates that his occupation inhibits physically activity which subsequently prevents him from achieving the United Kingdoms (UK) physical activity (PA) guidelines, due to working shift patterns predominately consisting of computer-based work. According to Marandi, et al. (2019), computer-based occupations can comprise of mentally demanding tasks, which is associated with the development of acute fatigue. The authors indicate computer-based work is associated with instigating musculoskeletal disorders. Lurati, (2019) Explains due to sedentary behaviours ‘sitting for excessive periods of time’ can generate muscle fatigue, caused by inaccurate posture alignment and physical inactivity. Being physically inactive reduces muscle mass and elasticity, which consequently, causes muscle fatigue and potential skeletal wasting (osteoporosis) (Lurati (2019). Whilst Mr X did not indicate a musculoskeletal disorder; it was noted that Mr X experiences neck and shoulder pain derived from prolonged computer-based work, that Lurati, (2019) describes as early muscle fatigue, which if sustained could develop into musculoskeletal injuries or disorders. Whilst Mr X explains when home exercise can improve these symptoms,improving sedentary behaviour in work through PA could prevent the onset of these symptoms from occurring (Kar and Hedge, 2020).

Whilst being active has shown to be beneficial for sedentary occupations,(Thivel, et al. 2018) Harris and Brey (2019) explains that there are psychological aspects for instance; mental fatigue generated from elongated cognitive activity can hinder the decision to become physically active due to symptoms of exhaustion, tiredness and demotivation. However, according to Nooijen, et al (2018), individuals working within sedentary occupations are often physically active within their leisure time, which correlates with Mr X’s lifestyle.

Mikkelsen et al (2017), indicates that exercise is an essential attribute for the psychological and emotional wellbeing of individuals, also known as mental health. Being physically active

defined as any bodily movement, and exercising, a planned structured activity has shown to induce enhancements within self-esteem, self-efficacy, and mood state; whilst providing anxiolytic effects (anxiety reducing) stress reductions and cognitive functioning to name a few. Mr X indicates experiencing anxiolytic effects (biochemical) and psychological properties when recalling the beneficial aspects of exercise, experienced when active. Kpame and Richard (2020), indicate that the distraction hypothesis postulates that distraction induced by being physically active, diverts negative thoughts and worries, in which Mr X illustrates when stating “You are not thinking about the worries within the world, you are just riding your bike”. Within the results Mr X expresses enjoyment of exercise in which Ghosh, (2018) postulates is regulated by endorphins reducing feelings of pain; subsequently instigating “euphoria”, defined as intense happiness, whilst alleviating anxiety. This could suggest that when Mr X is active the endorphin and distraction responses may correlate to generate improvements within his mental health.

According to Klaperski, et al (2019) exercising in outdoor environments were perceived to provide additional psychological and emotional enhancements, due to its calming atmosphere, which provides further reductions within stress and anxiety. Mr X expressed this when describing his perception on exercise, stating “you are within the here and now”. He predominantly partakes in outdoors. However, Wagner, et al. (2019) postulate that the weather, temperature and seasonal changes can generate barriers for adherence to exercise; altering the perception of comfort in exercising outdoors, which Mr X identifies with explaining “it’s tricky this time of year when its cold outside”. Furthermore Thakare, Mehrotra and Singh, (2017) found that listening to self-selected music during moderate intensity exercise has shown to encourage distraction whilst enhancing additional mood states. Mr X quantified experiencing this, when discussing the weather’s influence on motivation; describing his initial hesitation to exercise, however when cycling, listening to music diverts his attention from the weather; subsequently encouraging adherence to the activity.

3.0 Relate the findings to current behaviour change theories

According to Larango, (2016) the primary theoretical framework utilised is the Transtheoretical model (TTM). This model is employed to establish stages of behaviour change in order to generate initiatives that will promote adherence to exercise (Albula, et al. 2018). Whilst Mr X is occasionally active, his occupation and the seasonal change reduces motivation and adherence to exercise, which implicates his position on the transtheoretical continuum, fluctuating between pre-contemplation (not intending to change), contemplation (contemplating changes), preparation (creating small changes), and the action stage (actively exercising within six months) (Liu, et al. 2018). Due to working away two weeks of each month Mr X conducts two lifestyles which requires consideration when investigating behaviour change and developing initiatives. Decci and Ryan's, (1985,2000) theoretical model known as the Self-Determination theory (SDT) suggests that individuals behaviours towards PA is not dichotomous, simply low or high motivation; it develops over a continuum of motivational behaviours that facilitate the development of self-motivation, comprising of amotivation, extrinsic and intrinsic motivation. According to basic psychological needs integrated within the SDT; to maintain and promote personal growth and wellbeing, individuals require a set of psychological needs generating Autonomy, Competence, and Relatedness (Dore, et al. 2020).

According to Eigenschenk et al (2019) exercising within natural environments have shown to stimulate enjoyment, vitality, and revitalisation; due to the intense connection human beings experience with nature, comprising of blue, green and forestry settings; regarding parks, woodlands and rivers to name a few. This is also known as nature relatedness. Eigenschenk (2019) indicates that exercising within these environments, influences intrinsic motivation to exercise as the connection to nature generates self-satisfaction and self-esteem; subsequently encouraging adherence to the activity, whilst promoting self-efficacy and competence; in the belief of one's own ability to achieve and perform (Bandura, 1982). This also relates to the Theory of Planned Behaviour which postulates that individuals exercising within environments perceived as positive will influence future adherence to exercise (Ajzen, 1991). Mr X demonstrated experiencing these elements when reflecting on cycling outdoors, expressing enjoyment of exercise and its tranquil properties. Mr X is within the action stage at this point meeting the government guidelines for physical activity, whilst self-motivated to exercise. However, the weather hinders Mr Xs decision to exercise outdoors, which is the only environment he will exercise in, within his leisure time. This positions Mr X within the

contemplation stage of the TTM, an initiative that assists within the hesitation stage may be viable. This will provide Mr X with autonomy in continuing to exercise within a self-directed environment, whilst promoting self-esteem and efficacy in exercising within an environment previously cautious of adhering to.

Whilst Mr X is occasionally active at home, his sedentary occupation impedes his motivation to become physically active, consequently instigating musculoskeletal pain and positioning him within the pre-contemplation stage of the TTM. However, Mr X is aware of the cause of his musculoskeletal pain and is mindful that PA can ease symptoms. In reference to the Health Belief model educating him on how physical activity can prevent this from occurring; could increase motivation to become physically active whilst promoting a healthy wellbeing (Jones, et al.2015).

4.0 Initiatives

An initiative widely recommend within office-based sedentary occupations is the microbreak (Waongenngarm, Areerak and Janwantanakul, 2018). This initiative recommends individuals partake in light physical activity including stretching exercises, for the duration of thirty to one hundred seconds, alternating in ten-twenty-minute intervals (Kar and Hedge, 2020). Kar and Hedge, (2020) explain this has shown to reduce musculoskeletal pain, mental fatigue, whilst improving work productivity. This could assist in achieving work-related goals, generating competence, self-esteem and self-efficacy, whilst enhancing autonomy through self-directed active breaks (Briki, 2018).Alongside microbreaks Bukley, et al (2015) indicate that individuals working within sedentary occupations should strive to accumulate two hours of their working day physically active, subsequently reducing sedentary lifestyles and improving overall wellbeing. Within the interview Mr X described working away on a ship, this could generate an opportunity to achieve nature relatedness; through conducting thirty-minute walks four times a day either along the ships deck, (when safe)or throughout areas of the ship that reveals the sea. These initiatives could be presented in educating individuals that experience musculoskeletal pain, of the preventative and easing effect's physical activity and microbreaks can achieve (Karr and Hedge, 2020). This is within consideration of the Health Belief Model (Jones, et al. 2015).

Within Mr Xs leisure time it was indicated a barrier for adhering to exercise was seasonal change. However once cycling, music assisted in a distraction; indicating the initial hesitation may be the predominant barrier. According to Rivers, (2020) fitness technology generating

self-selected goals can improve motivation and adherence to exercise, which is widely utilised to create and track routes, personal improvements and develop a social community. This demonstrates autonomy through selecting self-directed routes, competence through viewing personal achievements and relatedness through being part of a social community. This is conducted through characteristics of applications like Strava ®, which records an individual's performance subsequently viewed with in a social community of the individual's choice and supported by other individuals acknowledging their performance and giving them "kudos" (Rivers, 2020).

5.0 Future Research

Hallet and Lamont, (2016) found that listening to music pre-exercise encourages motivational behaviours in initiating an activity. However, listening to music during exercise has shown to improve performance and adherence to an activity; listening to pre-exercise music is not as well documented. Examining the effects of music on motivation pre-exercise would be useful in future interventions, subsequently improving adherence to exercise. Furthermore, another intervention examining the consequences of correlating pre-exercise music and "goal setting" applications utilised within fitness applications including Strava ® would be interesting to establish whether this could be a viable intervention for the hesitation phase pre-exercise.

Further research on the psychological properties exercising within green space has on individuals working away on ships for long periods of time would be interesting when compared to individuals living on land.

Reference List

- Ajzen, I., (1991). The theory of planned behaviour. *Organizational behaviour and human decision processes*, 50(2), p.179-211.
- Bandura, A., (1982). Self-efficacy mechanism in human agency. *American psychologist*, 37(2), p.122.
- Briki, W., (2018). Why do exercisers with a higher trait self-control experience higher subjective well-being? The mediating effects of amount of leisure-time physical activity, perceived goal progress, and self-efficacy. *Personality and individual differences*, 125, p.62-67.
- Chan, J.S., Liu, G., Liang, D., Deng, K., Wu, J. and Yan, J.H., (2019). Special issue—therapeutic benefits of physical activity for mood: a systematic review on the effects of exercise intensity, duration, and modality. *The Journal of psychology*, 153(1), p.102-125.
- Doré, I., Sylvester, B., Sabiston, C., Sylvestre, M.P., O’Loughlin, J., Brunet, J. and Bélanger, M., (2020). Mechanisms underpinning the association between physical activity and mental health in adolescence: a 6-year study. *International Journal of Behavioural Nutrition and Physical Activity*, 17(1), p.9.
- Eigenschenk, B., Thomann, A., McClure, M., Davies, L., Gregory, M., Dettweiler, U. and Inglés, E., (2019). Benefits of outdoor sports for society. A systematic literature review and reflections on evidence. *International journal of environmental research and public health*, 16(6), p.937.
- Ghosh, S.K., (2018). Happy Hormones at Work: Applying the Learnings from Neuroscience to Improve and Sustain Workplace Happiness. *NHRD Network Journal*, 11(4), p.83-92.
- Harris, S. and Bray, S.R., (2019). Effects of mental fatigue on exercise decision-making. *Psychology of Sport and Exercise*, 44, p.1-8.
- Jones, C.L., Jensen, J.D., Scherr, C.L., Brown, N.R., Christy, K. and Weaver, J., (2015). The health belief model as an explanatory framework in communication research: exploring parallel, serial, and moderated mediation. *Health communication*, 30(6), p.566-576.
- Kar, G. and Hedge, A., (2020). Effects of a sit-stand-walk intervention on musculoskeletal discomfort, productivity, and perceived physical and mental fatigue, for computer-based work. *International Journal of Industrial Ergonomics*, 78, p.102983.

Kar, G. and Hedge, A., (2020). Effects of a sit-stand-walk intervention on musculoskeletal discomfort, productivity, and perceived physical and mental fatigue, for computer-based work. *International Journal of Industrial Ergonomics*, 78, p.102983.

Klaperski, S., Koch, E., Hewel, D., Schempp, A. and Müller, J., (2019). Optimizing mental health benefits of exercise: The influence of the exercise environment on acute stress levels and wellbeing. *Mental Health & Prevention*, 15, p.200173.

Kpame, M.B. and Richard, J., (2020). Aerobic Exercise Intervention as Part of Management Options for Depression and Anxiety. *KIU Journal of Social Sciences*, 6(1), p.145-150.

Lurati, A.R., (2018). Health issues and injury risks associated with prolonged sitting and sedentary lifestyles. *Workplace health & safety*, 66(6), p.285-290.

Mikkelsen, K., Stojanovska, L., Polenakovic, M., Bosevski, M. and Apostolopoulos, V., (2017). Exercise and mental health. *Maturitas*, 106, p.48-56.

Nooijen, C.F., Del Pozo-Cruz, B., Nyberg, G., Sanders, T., Galanti, M.R. and Forsell, Y., (2018). Are changes in occupational physical activity level compensated by changes in exercise behaviour? *European journal of public health*, 28(5), p.940-943.

Rhodes, R.E., McEwan, D. and Rebar, A.L., (2019). Theories of physical activity behaviour change: A history and synthesis of approaches. *Psychology of Sport and Exercise*, 42, p.100-109.

Thakare, A.E., Mehrotra, R. and Singh, A., (2017). Effect of music tempo on exercise performance and heart rate among young adults. *International journal of physiology, pathophysiology and pharmacology*, 9(2), p.35.

Thivel, D., Tremblay, A., Genin, P.M., Panahi, S., Rivière, D. and Duclos, M., (2018). Physical activity, inactivity, and sedentary behaviours: definitions and implications in occupational health. *Frontiers in public health*, 6, p.288.

Wagner, A.L., Keusch, F., Yan, T. and Clarke, P.J., (2019). The impact of weather on summer and winter exercise behaviours. *Journal of sport and health science*, 8(1), p.39-45.

Zargari Marandi, R., Madeleine, P., Omland, Ø., Vuillerme, N. and Samani, A., (2019). An oculometrics-based biofeedback system to impede fatigue development during computer work: A proof-of-concept study. *PloS one*, 14(5), p.e0213704.

Appendix

Motivations and Barriers Interview Transcript

1. How do you feel about exercise or Physical activity?

I feel like I should do more exercise and physical activity. I Certainly don't do enough; um I can usually find something else to do rather than exercise and physical activity. I don't periodise it.

2. Do you currently participate in any exercise or physical activity?

Yes, I have been doing, doing some cycling/mountain biking, and if you account me looking after my children then yes that too, but not much.

3. Do you feel this is a positive or negative experience when you are physically active?

When I actually start and do go out on my mountain bike yes, I do find it positive after that initial hesitation to start, but then as soon as I have started, I find it most enjoyable. Its tricky this time of year when it is cold outside.

4. What do you find enjoyable about cycling?

5. *I like the fact I am going somewhere and that it is iyt does feel good when you are.... Yeah it makes me feel healthier I suppose.*

6. How many minutes per week would you estimate you spend doing moderate to vigorous physical activity? Moderate gets you abit red a bit out of breath and starting to perspire.

Um not that much to be honest. Minutes would be hard to justify.... actually no I have started using Strava app actually cycling depends ... I work away on the ships and when I am away actually will not do any exercise apart from my work but when I am home I it is weather dependant as well and now it is winter it is harder to get the motivation to go out and start the cycling. Once you've started its not too bad but, but it is always not as inviting as going our on a sunny day. So, it is a hard figure to quantify but if the weather is good I will happily go out every day of the week for a 20-30 minute bike ride or up to an hour. But because it is now winter, I haven't been out for the last five day because it has been colder and raining outside.

7. Do you have any other any other interest in exercise activities?

No to be honest I the thought of running on a treadmill, exercise or going to a gym just really doesn't appeal to me. One for exercising with other people in a gym just is not my cup of tea. I like to be out on my own and I did think about taking up rowing maybe using a rowing machine but it the expense of accessing a proper quality rowing machine has I have not taken up on that yet.

8. Are you aware of the current physical activity guidelines?

No not for definite I could take a guess at them. I know your meant to take something like a thirty-minute walk or thirty minutes an hour a day of activity, I think. But that's really a guess it's not. Its 150 minutes of moderate intensity per week. This could be swimming, cycling, or walking or you can do 75 minutes of vigorous intensity per week which would be sport or running.

Ok oh that was another sport that reminds me of another physical activity that I really enjoyed well I have actually been snowboarding for a few years but obviously that is hard to do in the UK in south west wales. There's not even any dry ski slopes close and its of great expense going abroad, but I did look at taking up surfing but again I need to increase my upper body fitness to be able to paddle.

9. How active do you feel you are in comparison to the current guidelines?

I what was it 150 minutes a week? Yes, but that's moderate intensity or vigorous intensity would be 75 minutes. Um yes well, nowhere close if I include the two weeks of the month im away in work because my work now involves a lot of computer work rather than physical actively work. Um so yes no nowhere as near.

10. Do you believe any health benefits to be obtained from physical activity?

Absolutely of course. The motivation is the problem and the interest because running on a treadmill just not appeal to me.

11. Do you have any medical conditions which effects your ability to exercise or any limitations?

Um no not that I know of.

12. Do you have any recurring injuries that may limit physical activity? If this

Um I actually find that physical activity even tho I don't do enough of it actually helps um any of my.... sometimes when I do a lot of computer work, I get shoulder and neck pain and stuff, but I actually find the more physical activity I do actually helps that. So, I again I know I should do more physical activity. But no, I don't have any recurring issues that stops me if that makes sense.

13. Do you feel that physical activity can impact upon your mental health and mood state in any way?

Yes, absolutely I can see the and I have found that.... the positives of physical activity from enjoyment of it and from the health benefits. Both.

14. How do you feel post exercise?

Would completely depend on the exercise and what I was doing. If I am doing the exercises, I enjoy then yeah it feels great and I feel.... even if I have over done it with snowboarding for example. If I am over exhausted, I will want to go out and do more because it is so much fun.

15. How do you feel during exercise?

During exercise um I have to say I find it hard to start exercise whatever it may be its that initially getting up and starting. Once im going especially listening to music while I am doing it, I find that I get on with it and keep going if I can get in that flow. Um in fact not too much thinking about anything. And then post exercise I feel good if I have enjoyed it and motivated.

16. Are there any barriers other than work that could prevent you from exercising? *Um yeah lack of interest absolutely interest. The wrong type of exercise, the weather um and then going through to my job where I work away two out of four weeks a month on a ship um I must mention they do have a gym on the ship but the thought of going to a gym has never really appealed to me . especially exercising with other people umm I don't really have the technique, or the gym toned body to be present in a gym.*

17. Do you think or find any part of activities can be stressful or stress relieving?

Yes, both um as I mentioned just now actually if I was to go to the gym, I would find that very stressful. Umm stress relieving yes and the fact when you start exercising the fact that you only.... You're not thinking about the worries within the world you are just be riding on your bike or going down a mountain on a snowboard or swimming in the sea with a surfboard. It's very much their and now which is nice.

18. Are your friends or family currently physically active? *Um that's a hard one during this current pandemic. My yes, my wife does a lot of running on the treadmill um and running outside.*

19. Do the activities levels of family members or friends have any impact on you in any way?

Yes, my wife exercising encourages me to exercise as well um. But sometimes I dunno.

20. Do you feel there are sufficient resources there are locally to exercise within like outdoor settings? Or is their enough accessibility green space?

Yes there is plenty locally as I say the main uh issue for myself that puts me off is the weather um... being winter in south west wales but um... and my lack of interest of carrying out exercise indoors mainly that it also comes down to lack of equipment as well and lack of interest in going to a gym.

21. Do you currently aim to achieve anything from exercise if so what?

Um yes, I would like to get rid of my belly and my gut and just be generally healthier and the more alertness and awokeness that um being fitter achieves.

22. Has lockdown affected your ability practically to exercise

Yes, it has meant I couldn't go snowboarding this year. But then that is just one type of exercise umm I also umm no because I personally don't like to go to a gym. My exercise I do partake in is generally outside so no it has not effected my motivation or ability to exercise because the settings I am interested in taking my exercise were not affected

23. Did you have access to local green space areas to exercise during Lockdown? Yes, how did you feel about this and what type areas do you have access to? *I find because I could go out on my bike locally its straight from my door. I didn't have to have contact with anyone, if not needed to. So yes, I was fine.*

24. Did you have a routine during lockdown which included exercise alongside work/ childcare?

Um did I have a routine... no it wasn't a specific routine I would go through fits and bursts of doing a lot of exercise one day and it was very hard its I would more keep the exercise up for the children actually. Which was good exercise for them. Like taking them out on their bikes but the bike route would have to be flat and it couldn't be along any roads. So I would prioritise making the children had exercise and green space rather than myself and after taking them out and taking them home it wasn't really practical then for myself to go out or also then the motivation wasn't there to do it

25. Did you feel that exercise during lockdown had an effect psychologically?

Um yes absolutely actually even tho I didn't do that much but taking the children out for exercise. I myself improved everyone's um psychological or mental state um particularly I mean during lockdown in fact it was one of the lucky things about the first lockdown, um Back at the start of the coronavirus it was that the weather was so fantastic and that we had access to a garden to go outside. But also, we could go on exercise from our house and um have exercise outside and away from the house, basically so were not/weren't stuck in the house for the entire time.

How do you feel the interview went?

Uh yeah good quite nervous um talking personally about myself is uh but yes it was good thank you.

26. Did you feel that you were able to tell all that you wanted to?

Yes, I think so um I waffle a bit too much going between different subjects' um yep no it was alright thank you.

27. Were you unhappy with any of the questions I asked?

Um no they were all fine they were ok for me to answer.

28. Did you think that I led or influenced your answers in any way?

No

Thank you

Thank you nice to meet you.