A Comprehensive Review of Interventions Impacting Physical and Mental Well-being Associated with the Move Your Mood (MYM) Pilot Program for Older Adults

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The research-based Move Your Mood (MYM) program was developed to enhance the physical and mental well-being of participants by promoting physical activity (PA) and healthy lifestyle practices (Alberta Health Services, 2024). MYM encompasses four pillars of health, focusing on moving (physical activity) and fueling (nutrition) participants' bodies, practicing mindfulness and expanding one's mind by building coping strategies. Initially developed for children and youth, this initiative is currently being expanded via a MYM pilot program directed at the well-being of older adults. Considerable evidence supports positive relationships between each of the four pillars of health and quality of life (QoL) (defined as "the individual's perception of his/her position in life, within the context of culture and value systems in which he/she lives and in relation to his/her objectives, expectations, standards and concerns"- World Health Organization, 2020b), with clear implications for potential benefits arising from interventions constructed to augment the successful aging of this cohort. The purpose of the following literature review is to explore evidence pertaining to the efficacy of interventions for older adults pertinent to each of the MYM pillars.

According to Rowe and Kahn (1997), successful aging comprises three primary components: high physical and cognitive functioning, low probability of disability and disease, and active social engagement. With the number of older adults anticipated to almost double from 2015 to 2050 (Bauman et al., 2016; World Health Organization, 2020a), the aging population will also see increases in multimorbidity: "the coexistence of two or more chronic diseases in one individual" (Afshar et al., 2015, p. 1). Tackling multimorbidity remains a global primary challenge, compelling the need for interventions as possible solutions to reduce the factors driving multimorbidity prevalence. Communities adapting to this shifting demographic and participating in healthy aging can empower older adults to live longer and healthier lives (World Health Organization, 2020a). As such, MYM embodies these solutions to the three components of successful aging, as evidenced in this review.

Move Your Body

Likely, the most prominent and widely researched of the four pillars is "Move Your Body." The Government of Canada (2019) recommends that adults over 65 partake in a minimum of two and a half hours (150 minutes) of moderate to vigorous aerobic activity each week and bone and muscle strengthening at least twice a week. The benefits associated with higher levels of physical activity are many, including increased quality of life and mental health, improved balance, reduced falls and injuries, greater independence, and improved cognitive function and mood (Barcelos et al., 2015; Bauman et al., 2016; Bootsman et al., 2018; Maxwell & Lynn, 2015; Thom et al., 2021; Xu et al., 2022). Physical activity is also linked to lower incidences of chronic diseases, including cardiovascular and respiratory, stroke, diabetes, dementia, some cancers and most vitally, premature death (Bauman et al., 2016; Louw et al., 2012; Malone et al., 2012; Maxwell & Lynn, 2015; Posadzki et al., 2020; Thom et al., 2021).

Benefits to well-being among older adults have been demonstrated via various exercise interventions, including cardiovascular-based training, weight training and balance exercises (Barcelos et al., 2015; Bauman et al., 2016; Maxwell & Lynn, 2015; Xu et al., 2022). Unfortunately, despite the abundance of evidence demonstrating the health benefits, most older adults do not meet the suggested minimum guidelines for PA (Bauman et al., 2016; Dalgas et al., 2024; Thom et al., 2021; Trudelle-Jackson &Jackson, 2018). The potential value of PA-focused interventions is apparent, as, with a rapidly aging population, resources allocated to manage increases in falls and related injuries, chronic diseases, and long-term healthcare costs will increasingly be challenged. Indeed, the theory of Active Aging ("the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age," put forth as a policy framework by the World Health Organization in 2002) describes PA as "the most important determinant of 'active aging' and has a major role in improving the quality of life, in reducing disability, and in the 'compression of morbidity' in later life" (Bauman, 2016, p. 269).

Unfortunately, despite the clear value to older adults of PA engagement, a number of potential barriers exist. In a study by Louw et al. (2012), older adults expressed that lack of knowledge, motivation, and time, as well as health issues, were primary concerns preventing them from participating in regular exercise routines. Similarly, Malone et al. (2012) highlighted that knowledge, accessibility and exertion prevented an older cohort from starting or maintaining a workout program. These perceived barriers in both studies were higher in participants who did not meet the suggested 150 minutes of weekly activity.

Fuel Your Body

The Move Your Mood program's second pillar is nutrition and healthy eating practices. Nutrition is a crucial and readily contributor to successful aging. Research has consistently shown a relationship between diet and health, and poor nutrition is a clear risk factor for the development or exacerbation of chronic diseases and impairments linked to aging, including osteoporosis, macular degeneration, urinary incontinence, constipation, and sleep-related issues (Govindaraju, 2018; Roberts et al., 2021). Moreover, healthy dietary patterns are associated with lower incidences of sarcopenia, cognitive impairment, dementia, and diabetes (Roberts et al., 2021).

Numerous diets are promoted to older adults, with many making unsubstantiated claims. Evidence-based analysis has demonstrated that the critical components of healthy eating include high intake of whole grains, fruits and vegetables, legumes, and seafood and low intake of carbohydrates, processed meats, sweetened foods, and refined grains (Govindaraju, 2018). Notably, the Mediterranean diet repeatedly emerges as employing these critical components in the literature. This diet has been linked to reduced body mass, inflammation and frailty, lower risk of cardiovascular events, cessation of hypertension, better brain function and mental health, decreased psychological distress and mortality, and overall better QoL (Govindaraju, 2018; Leitão et al., 2022). Typical Western diets, on the other hand, which are high in saturated fats, salt, and processed foods and low in critical components, have consistently been found to be associated with adverse effects on immunity, chronic diseases, cardiovascular events, diabetes, cancer, asthma, cognitive function, mental health, and depressive symptoms (Govindaraju, 2018; Leitão et al., 2022).

Unfortunately, inaccurate perceptions of old age and the aging process held by older adults are a significant factor in reluctance to change dietary behaviours. Many older adults normalize their conditions, like being overweight or in poor health, as par for the course or believe they are as healthy as can be for their age (Bardach et al., 2016). At the same time, the emergence of adverse health outcomes (or the desire to avoid or minimize these) and the anticipated benefits of lifestyle changes can be powerful motivators. For example, adverse experiences like breathing issues and diminished daily functioning, as well as the desire to avoid medications and to look and feel better, are strong predictors of dietary change in older adults. Unfortunately, for many older adults, these motivations do not always manifest in dietary change due to social barriers such as socioeconomic status, especially with the fast-rising prices of groceries and healthy foods. (Go-vindaraju et al., 2022).

Practice Mindfulness

The third pillar of the MYM is the practice of mindfulness. According to Kayser et al. (2023), mindfulness can be defined as "the awareness that arises from paying attention, on purpose, in the present moment and non-judgmentally" (p. 1). Numerous mindfulness-based interventions exist and have been shown to positively impact various indices of mental and physical well-being in older adults experiencing a range of conditions, including cancer, stroke, insomnia and dementia (Li & Bressington, 2019). Some examples of interventions employing mindfulness include: Mindfulness-Based Stress Reduction (MBSR), a group intervention including techniques like formal meditations, yoga, and everyday mindfulness and psychoeducation relaying info about stress, anxiety and pain; Mindfulness-Based Cognitive Therapy (MBCT); another group intervention that focuses on cognitive behavioural therapy and incorporates psychoeducation, mindfulness meditation and three-minute breathing sessions to ward off depressive relapses and reduce psychological distress; and finally, Mindfulness Training (MT), which consists of two components: activation of sustained and selective attention, inhibitory control and working memory; and equanimity, or calming of the mind. (Kayser et al., 2023; Li & Bressington, 2019; Sanchez et al., 2022). The primary goal of MT is to divert attention from distractions to intentional breathing, but it does not include relaxation techniques or psychoeducation. Evaluation of such interventions provides robust evidence of improvements in many cognitive outcomes, including attention, memory, and executive function, as well as decreases in stress and anxiety, depressive symptoms, negative mood, and pain. (Kayser et al., 2023; Nijjar et al, 2019; Sanchez et al., 2022).

Expand Your Mind

The final pillar of MYM is 'expand your mind', which focuses on building coping strategies through improving one's sense of self and promoting connectedness. A primary strategy is to improve one's coping ability through strengthening resilience, described as using resources to protect against risk factors (Jackson & Bergeman, 2011) or adapting to adversity (Pruchno et al., 2015). By virtue of living for several decades, most older adults have gone through personal and physical losses such as the death of loved ones, divorce or job loss, and declines in daily functioning, hearing and vision. Pruchno and colleagues suggest that due to these losses, the construct of successful aging can be viewed as "a pattern of resiliency across the lifespan" (p. 200). Through this resilience, people grow and are better off.

As the research suggests, one way to gain resilience is through religiosity or spirituality (R/S) (Jackson & Bergeman, 2011; Joiner et al., 2022). Evidence shows that higher levels of R/S consistently correlate with positive outcomes, particularly in well-being, life satisfaction, and happiness.

As mentioned above, another coping strategy is to strengthen and maintain a positive social support network. Positive health outcomes have been shown through social connectedness, especially in long-term care settings where reduced social engagement, depression and lower life satisfaction are more prevalent (Lim et al., 2023). In the systematic review by Lim et al. (2023), some studies advise that a lack of connectedness can cause social disengagement, isolation, loneliness and hastened time to death.

On a more positive note, social engagement is a vital strategy to promote and maintain mental health, positive health behaviours, and QoL (Lim et al., 2023; Lydon et al., 2022; Yen et al., 2022). More robust social connections are linked to resilience, better emotional health, mood, sleep, and reduced mortality risk in older populations (Lim et al., 2023). They may also have a positive effect by enhancing antiviral responses and reducing inflammation. Furthermore, systematic reviews of social participation identified that older adults who volunteer show fulfillment in social roles within the community (Krzeczkowska et al., 2021; Lydon et al., 2022). Voluntary, altruistic behaviours serve as a means to preserve life satisfaction and QoL in older adults and foster a sense of purpose and belonging, contributing to well-being (Krzeczkowska et al., 2021).

In sum, the intervention literature strongly supports the MYM program as an effective means of enhancing the well-being of older adults in terms of the individual beneficial impact of physical activity, nutrition, mindfulness, and coping. However, it should be emphasized that the MYM program is a combined holistic approach to well-being, which may be one of its greatest strengths. It is evident that complex, reciprocal relationships exist between PA, nutrition, and cognitive and social-emotional well-being. PA clearly benefits physical health and cognitive functioning, as does nutrition.

Mindfulness, like PA, reduces stress, anxiety and depression and helps develop a healthier relationship with food and exercise by increasing self-awareness. Regular physical activity, a balanced diet, and practicing mindfulness can boost resilience by improving physical and mental health. Engaging in physical activity and mindfulness practices with others can strengthen social bonds and foster a sense of connection. Stronger social connections and greater resilience lead to a higher likelihood of participating in PA, eating better, and practicing mindfulness. Thus, the holistic integration of these elements exemplified in the MYM for older adults initiative is likely conducive to improved overall health and quality of life in older adults in a manner greater than the influence of any one pillar in isolation. The vast majority of research has not adequately considered the additive benefits of such an approach (e.g., whether exercise combined with mindfulness social interaction has relatively greater benefit than an exercise program alone). Rigorous evaluation of the relative efficacy of unidimensional interventions versus combined holistic ones such as MYM is an important direction for future research.

References

- Afshar, S., Roderick, P., Kowal, P., Dimitrov, B. D., & Hill, A. G. (2015). Multimorbidity and the inequalities of global ageing: a cross-sectional study of 28 countries using the World Health Surveys. *BMC Public Health*, 15(1). https://doi.org/10.1186/s12889-015-2008-7
- Alberta Health Services. (2024). *Move your mood* | *Alberta Health Services*. https://www.albertahealthservices.ca/findhealth/service.aspx?source=mha&Id=1079352&facilityid=1002653
- Barcelos, N., Shah, N., Cohen, K., Hogan, M., Mulkerrin, E., Arciero, P. J., Cohen, B. D., Kramer, A. F., & Anderson-Hanley, C. (2015). Aerobic and cognitive exercise (ACE) pilot study for older adults: executive function improves with cognitive challenge while exergaming. *Journal of the International Neuropsychological Society*, 21(10), 768–779. https://doi.org/10.1017/s1355617715001083
- Bardach, S. H., Schoenberg, N. E., & Howell, B. M. (2016). What motivates older adults to improve diet and exercise patterns? *Journal of Community Health*, *41*(1), 22–29.
- Bauman, A., Merom, D., Bull, F., Buchner, D. M., & Singh, M. a. F. (2016). Updating the evidence for physical activity: summative reviews of the epidemiological evidence, prevalence, and interventions to promote "active aging." *The Gerontologist*, 56(Suppl 2), S268–S280. https://doi.org/10.1093/geront/gnw031
- Bootsman, N. J. M., Skinner, T. L., Lal, R., Glindemann, D., Lagasca, C., & Peeters, G. (2018). The relationship between physical activity, and physical performance and psycho-cognitive functioning in older adults living in residential aged care facilities. *Journal of Science and Medicine in Sport*, 21(2), 173–178. https://doi.org/10.1016/j.jsams.2017.07.006
- Dalgas, B. W., Elmose-Østerlund, K., & Bredahl, T. V. G. (2024). Exploring basic psychological needs within and across domains of physical activity. *International Journal of Qualitative Studies on Health and Well-being*, 19(1).

https://doi.org/10.1080/17482631.2024.2308994

Government of Canada. (2019, November 7). *Physical activity tips for older adults (65 years and older)*. Canada.ca. https://www.canada.ca/en/public-health/services/publica-tions/healthy-living/physical-activity-tips-older-adults-65-years-older.html

- Govindaraju, T., Sahle, B. W., McCaffrey, T. A., McNeil, J. J., & Owen, A. (2018). Dietary patterns and quality of life in older adults: a systematic review. *Nutrients*, 10(8), 971. https://doi.org/10.3390/nu10080971
- Govindaraju, T., Owen, A. J., & McCaffrey, T. A. (2022). Past, present and future influences of diet among older adults - A scoping review. *Ageing research reviews*, 77, 101600. https://doi.org/10.1016/j.arr.2022.101600
- Jackson, B. R., & Bergeman, C. S. (2011). How does religiosity enhance well-being? The role of perceived control. *Psychology of Religion and Spirituality*, 3(2), 149–161. https://doiorg.rdpolytech.idm.oclc.org/10.1037/a0021597
- Joiner, R. J., Martinez, B. S., Nelson, N. A., & Bergeman, C. S. (2022). Within-person changes in religiosity, control beliefs, and subjective well-being across middle and late adulthood. *Psychology and Aging*, 37(7), 848–862. https://doiorg.rdpolytech.idm.oclc.org/10.1037/pag0000713
- Krzeczkowska, A., Spalding, D. M., McGeown, W. J., Gow, A. J., Carlson, M. C., & Nicholls, L.
 A. B. (2021). A systematic review of the impacts of intergenerational engagement on older adults' cognitive, social, and health outcomes. *Ageing research reviews*, *71*, 101400. https://doi.org/10.1016/j.arr.2021.101400
- Leitão, C., Mignano, A., Estrela, M., Fardilha, M., Figueiras, A., Roque, F., & Herdeiro, M. T. (2022). The effect of nutrition on aging – A systematic review focusing on aging-related biomarkers. *Nutrients*, 14(3), 554. https://doi.org/10.3390/nu14030554
- Li, S. Y. H., & Bressington, D. (2019). The effects of mindfulness-based stress reduction on depression, anxiety, and stress in older adults: a systematic review and meta-analysis. *International Journal of Mental Health Nursing*, 28(3), 635–656. https://doi.org/10.1111/inm.12568
- Lim, E., Nielsen, N., Lapane, L., Barooah, A., Xu, S., Qu, S., McPhillips, E., Dubé, C. E., & Lapane, K. (2023). Health effects of social connectedness in older adults living in congregate long-term care settings: a systematic review of quantitative and qualitative evidence.

International Journal of Older People Nursing, 18(6), 1–44. https://doiorg.rdpolytech.idm.oclc.org/10.1111/opn.12577

- Louw, A. J., Van Biljon, A., & Mugandani, S. C. (2012). Exercise motivation and barriers among men and women of different age groups. *African Journal for Physical, Health Education, Recreation & Dance, 18*(4.1), 759–768.
- Lydon, E. A., Nguyen, L. T., Nie, Q., Rogers, W. A., & Mudar, R. A. (2022). An integrative framework to guide social engagement interventions and technology design for persons with mild cognitive impairment. *Frontiers in public health*, *9*, 750340. https://doi.org/10.3389/fpubh.2021.750340
- Maxwell, R., & Lynn, S. J. (2015). Exercise: A path to physical and psychological well-being. In S. J. Lynn, W. T. O'Donohue, & S. O. Lilienfeld (Eds.), *Health, Happiness, and Well-Being: Better Living Through Psychological Science*. (pp. 223–248). Sage Publications, Inc. https://doi-org.rdpolytech.idm.oclc.org/10.4135/9781483385822.n13
- Posadzki, P., Pieper, D., Bajpai, R., Makaruk, H., Könsgen, N., Neuhaus, A. L., & Semwal, M. (2020). Exercise/physical activity and health outcomes: an overview of Cochrane systematic reviews. *BMC Public Health*, 20(1). https://doi.org/10.1186/s12889-020-09855-3
- Pruchno, R., Heid, A. R., & Genderson, M. W. (2015). Resilience and successful aging: aligning complementary constructs using a life course approach. *Psychological Inquiry*, 26(2), 200-207.
- Roberts, S. B., Silver, R. E., Das, S. K., Fielding, R. A., Gilhooly, C. H., Jacques, P. F., Kelly, J. A., Mason, J. B., McKeown, N. M., Reardon, M. A., Rowan, S., Fontana, L., Shukitt-Hale, B., Smith, C. E., Taylor, A., Wu, D., Zhang, F., Panetta, K., & Booth, S. L. (2021). Healthy aging—nutrition matters: start early and screen often. *Advances in Nutrition*, *12*(4), 1438–1448. https://doi.org/10.1093/advances/nmab032
 Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The gerontologist*, *37*(4), 433-440.
- Thom, J. M., Nelis, S. M., Cooney, J. K., Hindle, J. V., Jones, I. R., & Clare, L. (2021). Promotion of healthy aging within a community center through behavior change: health and fitness findings from the AgeWell Pilot randomized controlled trial. *Journal of Aging & Physical Activity*, 29(1), 80–88. https://doiorg.rdpolytech.idm.oclc.org/10.1123/japa.2019-0396

- Trudelle-Jackson, E., & Jackson, A. W. (2018). Do older adults who meet 2008 physical activity guidelines have better physical performance than those who do not meet? *Journal of Geriatric Physical Therapy*, 41(3), 180–185. https://doi.org/10.1519/jpt.00000000000118
- World Health Organization: WHO. (2002). Active ageing: a policy framework. Geneva: World Health Organization. https://extranet.who.int/agefriendlyworld/wp-content/uploads/2014/06/WHO-Active-Ageing-Framework.pdf
- World Health Organization: WHO. (2020a, February 5). *Ageing*. https://www.who.int/health-topics/ageing#tab=tab_1
- World Health Organization: WHO. (2020b, February 5). *WHOQOL: Measuring Quality of Life*. https://www.who.int/tools/whoqol
- Xu, P., Huang, Y., Hou, Q., Cheng, J., Ren, Z., Ye, R., Yao, Z., Chen, J., Lin, Z., Gao, Y., & Chen, Y. (2022). Relationship between physical activity and mental health in a national representative cross-section study: its variations according to obesity and comorbidity. *Journal of Affective Disorders*, 308, 484–493. https://doi.org/10.1016/j.jad.2022.04.037