

## EXPLORING THE DIFFERENCES BETWEEN YOUNG AND MIDDLE-AGED ADULTS IN INTRINSIC MOTIVATION TOWARDS HEALTHY BEHAVIOURS AND MENTAL HEALTH: CROSS-SECTIONAL STUDY

### ANALIZA RÓŻNIC MIĘDZY MŁODYMI A DOROSŁYMI OSOBAMI W ŚREDNIM WIEKU W ZAKRESIE MOTYWACJI WEWNĘTRZNEJ DO ZACHOWAŃ PROZDROWOTNYCH I ZDROWIA PSYCHICZNEGO: BADANIE PRZEKROJOWE

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**Abstract:** Early adulthood is a pivotal period for the establishment of health behaviours and mental health patterns that have long-term implications for well-being. The objective of this study was to investigate age-related variations in motivation for physical activity, dietary habits, and levels of psychological distress. This investigation was undertaken to support the development of preventive strategies across the lifespan.

**Material and methods:** An observational study was conducted among two distinct age groups: young adults (18-39 years) and middle-aged adults (40-65 years). Participants completed questionnaires assessing intrinsic and extrinsic motivation for healthy behaviour, psychological distress, and self-reported lifestyle habits.

**Results:** A comparative analysis revealed that young adults exhibited significantly elevated levels of psychological distress in contrast to their middle-aged counterparts. However, no significant differences were observed between age groups in intrinsic motivation towards healthy behaviours. These findings suggest that motivation alone may not account for age-related contrast in health behaviours.

**Conclusions:** The results underscore the significance of examining additional psychosocial and environmental factors during the promotion of healthy lifestyles. The implementation of targeted, age-specific preventive interventions may contribute to the promotion of long-term physical and mental health.

**Keywords:** young adults, middle-aged adults, health behaviour, motivation, psychological distress

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**Streszczenie:** Wczesna dorosłość stanowi kluczowy okres kształtowania zachowań zdrowotnych oraz wzorców zdrowia psychicznego, które wpływają na dobrostan w późniejszym życiu. Celem badania było określenie różnic związanych z wiekiem w zakresie motywacji do aktywności fizycznej, nawyków żywieniowych oraz poziomu dystresu psychicznego, aby wesprzeć opracowanie skutecznych strategii profilaktycznych w ciągu życia.

**Materiał i metody:** Przeprowadzono badanie przekrojowe wśród młodych dorosłych (18-39 lat) oraz dorosłych w wieku średnim (40-65 lat). Zastosowano kwestionariusze oceniające motywację wewnętrzną i zewnętrzną do zachowań prozdrowotnych, poziom dystresu psychicznego oraz samoocenę stylu życia.

**Wyniki:** Młodzi dorośli wykazywali istotnie wyższy poziom dystresu psychicznego niż osoby w wieku średnim. Nie stwierdzono jednak istotnych różnic w poziomie motywacji wewnętrznej do zachowań prozdrowotnych między badanymi grupami.

**Wnioski:** Uzyskane wyniki wskazują, że sama motywacja nie wyjaśnia różnic w zachowaniach zdrowotnych pomiędzy grupami wiekowymi. Konieczne jest uwzględnienie dodatkowych czynników psychospołecznych i środowiskowych przy projektowaniu ukierunkowanych działań profilaktycznych.

**Słowa kluczowe:** młodzi dorośli, osoby dorosłe w średnim wieku, zachowania zdrowotne, motywacja, stres psychologiczny

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## Introduction

Population aging has emerged as one of the most pressing demographic challenges worldwide, and this trend is projected to continue between population aged 65 and older (UK Parliament, 2015). The percentage of individuals over 75 years facing chronic diseases is increasing, creating growing demands for health and social care services (Raymond et al., 2021). Evidence suggests that the main components of a healthy lifestyle (such as a balanced diet and regular physical activity) are crucial predictors of successful aging (WHO, 2020), improved mental health, and enhanced well-being (Wickham et al., 2020). Establishing healthy habits early in life can prevent chronic diseases and disabilities in later years.

Motivation has been identified as a critical determinant of sustained engagement in health-related behaviours, which are closely associated with both physical and psychological well-being. A lack of motivation may arise from low interest in engaging in healthy behaviours or from undervaluing their long-term outcomes (Ryan et al., 2009). Within the framework of Self-Determination Theory (SDT), intrinsic motivation constitutes the most autonomous and self-determined expression of motivation and is strongly related to long-term behaviour change (Deci, Ryan, 1985). Individuals who are intrinsically motivated engage in health behaviours because they align with their personal values, interests, or sense of purpose. Acting out of genuine enjoyment and personal meaning tends to result in more sustainable lifestyle changes. Within Self-Determination Theory, intrinsic motivation is not only associated with behavioural persistence but is also conceptually linked to psychological well-being through the satisfaction of basic psychological needs. Autonomous engagement in health behaviours has been shown to buffer stress, reduce emotional exhaustion, and support adaptive coping, whereas controlled forms of motivation are more frequently associated with distress and burnout. Thus, intrinsic motivation may play a dual role, functioning both as a driver of sustained health behaviour and as a psychological resource relevant to mental health.

Accordingly with SDT, three fundamental psychological needs, which means autonomy, competence, and relatedness, facilitate intrinsic motivation and promote optimal functioning and well-being (Deci, Ryan, 1985). Increases in these needs have been shown to positively influence behavioural outcomes and health-related goal attainment. Despite the well-described benefits of physical activity and healthy eating, recent evidence indicates a significant decline in these

behaviours among adults. Global data show that 27% of adults never participate in moderate-intensity physical activity (WHO, 2022), while rates of overweight and obesity continue to rise (Katsoulis et al., 2021). Lifestyle factors including physical activity, diet, and sleep are also closely linked to mental health outcomes, with poor mental health often co-occurring with chronic illnesses and physical limitations (Thomas, 2023; Prince et al., 2007).

Young adulthood and middle adulthood represent distinct developmental stages characterized by unique life goals, values, and motivations. Young adults, typically in a period of growth and identity formation, tend to prioritize social relationships, career aspirations, and personal achievements rather than health-oriented goals (Arnett, 2000; Bühler et al., 2019). Conversely, middle-aged adults, usually between 40-60 years old, are more likely to focus on well-being, health maintenance, and life meaning (Lachman, 2015; Levinson, 1978). This developmental shift suggests that motivation toward health behaviours may differ across age groups, potentially influencing both behavioural engagement and mental health outcomes. The adopted age categorisation (18-39 vs. 40-65 years) was guided by a developmental and preventive health perspective rather than by narrowly defined life stages. Early adulthood and mid-adulthood represent broadly distinct phases in terms of psychosocial tasks, health-related priorities, and exposure to cumulative stressors. While heterogeneity within each group is acknowledged, this approach allows for the examination of age-related contrasts relevant to population-level prevention strategies. Similar age groupings have been applied in prior research focusing on adult health behaviours and mental health outcomes (Lachman, 2015; Galambos et al., 2021).

Understanding motivational differences across the lifespan is crucial for designing effective health promotion and disease prevention interventions. Current evidence indicates that most preventive programs target adults aged 40 and over, whereas interventions for younger adults often rely on prescriptive advice rather than motivational enhancement (GOV.UK, 2022; NHS, 2023; JSNA, 2017). Given that intrinsic motivation has been consistently linked to greater persistence in health behaviour change (Ryan, Deci, 2000), identifying age-related variations in motivational patterns could inform the development of tailored, lifespan-sensitive interventions.

Drawing on developmental theories and Self-Determination Theory, the present study aims to examine intrinsic motivation toward healthy behaviours and its relationship with mental health among two adult groups: young and middle-aged adults. Specifically, this study tests two hypotheses: **H1:** Middle-aged adults will be more intrinsically motivated to engage in healthy behaviours than young adults.

**H2:** Middle-aged adults will experience better mental health than young adults.

## Material and methods

### *Study protocol*

Present study is a observational cross-sectional research to examine age-related differences in intrinsic motivation toward healthy behaviours and mental health between young and middle-aged adults. The survey collected both demographic data (age and gender) and psychometric data related to intrinsic motivation and psychological distress. Data collection was conducted using the web-based survey platform Qualtrics, which allowed participants to complete the questionnaire anonymously and remotely. A quantitative approach was selected due to its ability to test hypotheses and provide reliable, generalizable findings across a diverse sample (Steckler et al., 1992).

### *Participants*

A total of 102 participants were eligible in the study (26 males, 75 females, 1 identifying as other gender), aged from 18 to 65 years. The sample was divided into two developmental age categories: young (18-39 years) and middle-aged adults (40-65 years), based on Erikson's (1994) developmental framework. Participants were recruited through multiple channels, including an open call posted on social media (Facebook), email invitations distributed to colleagues and acquaintances, and an announcement on the University of Wolverhampton's Canvas notification board. A snowball sampling approach was encouraged, allowing participants to share the survey link with others. Participation was voluntary and uncompensated. The sample size was determined by feasibility constraints typical of exploratory cross-sectional research and is comparable to samples used in similar studies examining motivational and mental health differences across adulthood. A post hoc power analysis indicated that the final sample ( $N = 102$ ) was sufficient to detect medium-sized multivariate effects ( $f^2 \approx 0.25$ ) with acceptable statistical power ( $1-\beta > 0.80$ ) in MANOVA designs with two dependent variables.

### *Measures*

- Intrinsic motivation

Intrinsic motivation toward healthy behaviours was measured using a modified version of the Intrinsic Motivation Inventory (IMI) (Deci, Ryan, 2003). The IMI is a multidimensional instrument that assesses participants' self-perceptions of motivation related to specific activities. For this study, two subscales were utilized: Interest / Enjoyment and Value / Usefulness, which represent the core components of intrinsic motivation.

The adapted instrument included 14 items, each measured on a 7-point Likert scale ranging from 1 (not at all true) to 7 (very true). Sample items assessed participants' enjoyment and perceived value of engaging in healthy lifestyle behaviours. Items 2 and 4 were reverse-coded within the Qualtrics platform to ensure accurate computation of total scores. Higher scores indicated greater levels of intrinsic motivation.

- Mental health

Mental health was examined with using the Kessler Psychological Distress Scale (K10) (Kessler et al., 2003), a widely validated measure of non-specific psychological distress, which consists of 10 items, each rated on a 5-point Likert scale ranging from 1 (none of the time) to 5 (all of the time). Participants reported how frequently they experienced symptoms of distress (e.g., nervousness, restlessness, or hopelessness) over the past four weeks. Higher total scores indicate higher levels of psychological distress, with a maximum possible score of 50 representing severe distress.

In the present sample, the Intrinsic Motivation Inventory demonstrated high internal consistency (Cronbach's  $\alpha = 0.89$  for the total scale). The Kessler Psychological Distress Scale (K10) also showed excellent reliability (Cronbach's  $\alpha = 0.91$ ), consistent with previous validation studies.

### *Procedure and ethics*

Ethical approval for present research was given by the Medical University of Silesia in Katowice, Poland (Resolution No. PCN/CBN/0052/KB/127/22) on 20 November 2024. Prior to participation,

all individuals received information concerning the study's aims, procedures, but also ethical principles, including confidentiality and voluntary participation. Participants provided informed consent electronically prior to completing the survey.

Participants were fully informed that their involvement was anonymous, that no identifying information would be collected, and that they were free to withdraw from the study at any point before submission of their responses. Collection of data was performed over a 4-week period using the Qualtrics platform. Upon completion, participants were presented with a debriefing statement and provided with the researcher's contact details and university information should they wish to receive further information about the study.

### *Data analysis*

Obtained data were calculated and analyzed by JASP programme version 0.16.2.0. Prior to statistical analyses, data were screened for missing responses; incomplete cases ( $n = 30$ ) were removed. For all variables, descriptive statistics were obtained in the form of means ( $M$ ) and standard deviations ( $SD$ ). Composite scores for Intrinsic Motivation and Psychological Distress (K10) were computed by summing the relevant items, with reverse-coded items adjusted accordingly.

A one-way Multivariate Analysis of Variance (MANOVA) was conducted to examine the effect of age group (young vs. middle-aged adults) on intrinsic motivation and psychological distress. Age group was treated as the sole independent variable, and intrinsic motivation and psychological distress were included as dependent variables. Results were considered statistically significant at  $p < 0.05$ .

Potential confounding variables such as socioeconomic status, physical health conditions, or occupational status were not controlled for in the present analyses. This decision was deliberate, as the study aimed to capture global age-related differences under naturalistic conditions rather than isolate specific causal mechanisms. Nonetheless, the absence of covariate control should be considered when interpreting the findings, and future research should incorporate multivariate models including relevant psychosocial and contextual factors.

## **Results**

### *Sample characteristics*

After excluding incomplete responses ( $n = 30$ ), the final group consisted of 102 participants (26 males, 75 females, 1 identifying as other gender). Respondents were divided into two age categories: young (18-39 years;  $n = 49$ ) and middle-aged adults (40-65 years;  $n = 53$ ). Descriptive statistics indicated that the overall mean score for Intrinsic Motivation was  $M = 77.24$ ,  $SD = 12.55$  (range: 47-98), and for Psychological Distress (K10) was  $M = 21.05$ ,  $SD = 6.99$  (range: 10-50). Group means are summarized in Table 1.

**Table 1.** Descriptive statistics for dependent variables by age group

Variable	Age group	n	M	SD	Shapiro-Wilk	p
Intrinsic Motivation	18-39	49	77.29	12.27	0.957	0.073
Intrinsic Motivation	40-65	53	77.19	12.87	0.975	0.316
Psychological Distress	18-39	49	23.18	8.25	0.919	0.002
Psychological Distress	40-65	53	19.08	4.91	0.969	0.176

Source: own study.

### *Multivariate analysis of variance (MANOVA)*

A one-way MANOVA was conducted to examine the effect of age group (younger versus older) on Intrinsic Motivation and Psychological Distress. The multivariate test presented a statistically significant effect of age, Pillai's Trace (PT) = 0.10,  $F(2, 99) = 5.53$ ,  $p = 0.005$ , indicating overall differences between age groups across the combined dependent variables.

Assumptions of independence and adequate sample size were met, with each participant belonging to only one age group (young:  $n = 49$ ; middle-aged:  $n = 53$ ). The two dependent variables were moderately correlated ( $r = -0.36$ ,  $p < 0.001$ ), pointing that higher intrinsic motivation was associated with lower psychological distress.

Although the assumption of homogeneous covariance matrices was violated according to Box's M test ( $p = 0.003$ ), the MANOVA results were considered robust due to the relatively balanced group sizes. To verify the stability of the findings, the analysis was repeated after removing outliers; the effect of age remained significant (PT = 0.09,  $F(2, 98) = 4.93$ ,  $p = 0.009$ ), confirming that the observed differences were not driven by extreme values.

### *Univariate analyses*

Due to non-normal distribution of some variables (Shapiro-Wilk  $p < 0.05$  for Psychological Distress), non-parametric analyses were performed to further explore group differences.

A Kruskal-Wallis H test revealed a significant main effect of age on Psychological Distress,  $H(1) = 5.32$ ,  $p = 0.021$ ,  $\eta^2 = 0.053$ , indicating a medium effect size (Table 2). Post hoc Dunn's test with Bonferroni correction showed that young adults reported significantly higher psychological distress compared with middle-aged adults ( $p = 0.011$ ). In contrast, no significant difference was showed between age groups for Intrinsic Motivation,  $H(1) = 0.02$ ,  $p = 0.893$ , suggesting comparable levels of intrinsic motivation across both age groups.

**Table 2.** Non-parametric comparisons by age group

Dependent Variable	Test Statistic	df	p	Effect size ( $\eta^2$ )	Interpretation
Psychological Distress	$H = 5.32$	1	0.021	0.053	Young > Middle-aged
Intrinsic Motivation	$H = 0.02$	1	0.893	—	n.s.

Source: own study.

### *Summary of findings*

The results indicate that middle-aged adults experience significantly lower psychological distress than young adults, supporting Hypothesis 2 (H2). Nonetheless, no significant difference in intrinsic motivation was obtained between the two age groups, therefore Hypothesis 1 (H1) was

not supported. Overall, findings suggest that age is related to better mental health but not to higher intrinsic motivation toward healthy behaviors.

## **Discussion**

### *Overview of findings*

The present study examined age-related differences in intrinsic motivation toward healthy behaviours and psychological distress among young (18-39 years) and middle-aged (40-65 years) adults. The results revealed significant multivariate differences between the age groups, with young adults reporting higher psychological distress than their middle-aged counterparts. However, no significant differences were observed in intrinsic motivation toward healthy behaviours. These findings partially supported the study hypotheses, confirming the association between age and mental health, but not between age and intrinsic motivation.

These results align with recent reports indicating an alarming decline in mental health among young adults worldwide, alongside growing evidence of the protective role of intrinsic motivation and self-regulation for health and well-being (Prince et al., 2007). The study contributes to the understanding of how motivational and emotional factors may interact differently across developmental stages of adulthood.

### *Intrinsic motivation and age*

The descriptive analysis indicated that participants in both age groups reported relatively high intrinsic motivation toward healthy behaviours, suggesting that most individuals in the sample were already engaged in health-promoting activities for autonomous reasons. This is consistent with the Self-Determination Theory (SDT) framework, which assumes that behaviours grounded in intrinsic motives (such as enjoyment and personal value) are more sustainable and associated with better well-being (Ryan, Deci, 2000; Fortier et al., 2012).

As reported in previous studies (Bühler et al., 2019; Thorpe et al., 2013; Naaman, 2022), the current findings indicate that age was not a determining factor for intrinsic motivation. People across both age groups appeared to value health and well-being similarly. Previous research demonstrated that intrinsic motivation fluctuates depending on personal values, goals, and life circumstances (Lachman et al., 2015; Thams, Brassens, 2023). Middle-aged adults often report greater health awareness and purpose-driven motivation (Aaltonen et al., 2013), while younger adults may engage in healthy behaviours primarily for social or external reasons (Capel et al., 2015).

The absence of age differences in the present study could reflect that both groups have integrated health-promoting behaviours into their value systems, possibly due to cultural shifts emphasizing wellness and fitness across adulthood. The satisfaction of basic psychological needs (competence, autonomy, and relatedness) has been identified by Deci and Ryan (2000) as a central determinant of intrinsic motivation. Future studies could extend these findings by examining how these specific needs predict health-related motivation across different age stages.

### *Mental health and age*

The hypothesis that middle-aged adults would exhibit better mental health than young adults was supported. The results demonstrated significantly higher psychological distress among participants aged 18-39 years, consistent with the lifespan perspective on mental health, which underlines early adulthood as a period of increased vulnerability (Kessler et al., 2007). The transition to independence, career challenges, and social role changes contribute to this heightened risk (Arnett, 2000).

These findings mirror previous research showing poorer mental health outcomes among younger adults (Dijk, Mireau, 2018; Kessler et al., 2007 ; Auerbach et al., 2018). According to Arnett's concept of "emerging adulthood" (18-25 years), this stage is marked by identity exploration and instability, which may elevate susceptibility to anxiety and depression. In contrast, middle-aged adults may benefit from more stable social roles and coping mechanisms that buffer stress.

While some studies suggest a decline in well-being during midlife, forming a U-shaped pattern of happiness (Graham, 2005; Galambos et al., 2021), the present findings did not confirm such a pattern. This discrepancy might reflect differences in sample characteristics, cultural context, or the broad age range (40-65 years) used for the middle-aged group. Future research could focus on narrower life stages, such as the midlife transition (40-45 years) described by Levinson (1978), to explore potential fluctuations in psychological distress across adulthood.

### *Strengths, limitations, and recommendation for future research*

The findings of the present study contribute meaningful insights into the interaction between motivation and mental health across adulthood. However, several limitations must be acknowledged. First, data were collected using self-report online questionnaires, which are vulnerable to response bias and social desirability effects (Braithwaite et al., 2021; Andrade, 2020). Anonymity and concise item wording were used to minimize these effects, but they cannot be entirely ruled out.

Second, intrinsic motivation was assessed using only two IMI subscales – Interest / Enjoyment and Value / Usefulness. While these provide a meaningful overview, future research should incorporate additional dimensions like Perceived Competence, Perceived Choice, and Relatedness (Deci, Ryan, 2003) to capture the full motivational profile.

Third, the study followed Erikson's (1994) developmental framework dividing adulthood into early and middle stages. Future investigations could adopt updated developmental perspectives, such as emerging adulthood (Arnett, 2000) or midlife transition (Levinson, 1978), to pinpoint more precisely when shifts in motivation and mental health occur.

Despite these limitations, the study employed validated and reliable instruments (IMI and K10), ensuring measurement accuracy and allowing replication. The findings highlight the need for targeted interventions supporting young adults' mental health and promoting intrinsic motivation through autonomy-supportive environments and values-based health programs.

### **Conclusions**

This study sought to identify the adult age group most at risk for developing future physical and mental health problems, thereby contributing to the growing body of research on prevention and health promotion. The findings revealed significant age-related differences in mental health,

with young adults experiencing higher psychological distress compared to middle-aged adults. Conversely, the results did not indicate any significant differences in intrinsic motivation toward healthy behaviours between the two groups.

These results suggest that while motivation to engage in health-promoting behaviours may remain stable across adulthood, the mental health vulnerability of younger adults represents an important target for early prevention. Because many chronic diseases and later-life disabilities are linked to poor mental health and unhealthy habits established in early adulthood, these findings have practical implications for healthcare professionals, educators, and public health policymakers. Designing age-tailored interventions that foster intrinsic motivation and provide mental health support may help reduce long-term health risks and promote well-being throughout the adult lifespan.

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