



THE INTERRELATIONSHIP BETWEEN PSYCHOLOGICAL WELL-BEING AND PUBLIC HEALTH OUTCOMES: AN INTEGRATIVE STUDY OF MENTAL, SOCIAL, AND PHYSICAL HEALTH DETERMINANTS

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Abstract

Psychological well-being has emerged as a central determinant of health, influencing morbidity, mortality, and quality of life. However, much of the evidence remains fragmented, with mental, social, and physical determinants often examined in isolation. This study investigates the integrative relationship between psychological well-being and public health outcomes, emphasizing behavioral mediation and social moderation. An integrative cross-sectional study was conducted with 500 adults selected through stratified random sampling from urban and rural settings. Psychological well-being was measured using the Ryff Psychological Well-Being Scale and the WHO-5 Well-Being Index. Public health outcomes included self-rated health, morbidity, and healthcare utilization, alongside social determinants (e.g., social support, SES) and physical determinants (e.g., activity, BMI). Analyses comprised descriptive statistics, Pearson correlations, hierarchical regression, and mediation/moderation testing with PROCESS in SPSS. Higher psychological well-being correlated with better self-rated health ($r = .47, p < .001$), lower morbidity ($r = -.34, p < .001$), and reduced healthcare utilization ($r = -.29, p < .001$). Regression confirmed well-being as a significant predictor of health ($\beta = .41, p < .001$) and lower utilization ($\beta = -.28, p < .001$), increasing explained variance from 22% to 37%. Physical activity partially mediated the relationship with self-rated health (indirect effect = 0.11, 95% CI [0.07, 0.16]), while social support moderated the association with healthcare use ($\beta = -.17, p = .003$). Psychological well-being directly and indirectly influences public health outcomes through behavioral and social pathways. Findings reinforce integrative models of health and call for holistic, multi-sectoral policies that embed well-being in prevention frameworks to improve population resilience and sustainability.

Keywords: Psychological well-being; Public health outcomes; Social determinants of health; Physical activity mediation; Integrative health models

Introduction

Health has evolved far beyond the lack of disease to include broader determinants, which are psychological, social, and physical in nature. There is an increased awareness of psychological wellness in the world health research in the context of morbidity, mortality, and quality of life. Substantial evidence supports that psychologically well individuals live long and healthy lives with reduced risks of chronic disease, less disability, as well as improved outcomes of recovery upon illness (Sohaib, 2022). Such tendencies put psychological well-being in the centre of the healthcare issue discussion, where it is increasingly becoming apparent and recognised as a personal attribute, as well as a social resource that can reduce the number of healthcare expenses and improve population performance (Trudel-Fitzgerald et al., 2019). To this effect, the mutual dependency of psychological health and population health is a scientific and policy-level necessity and urgency.

The psychological well-being of the population matters to the health of the population since it may be a mediator and predictor of health outcomes. The psychological health, in turn, influences biological systems, stress responses, and health behaviours that determine morbidity and mortality (Levine et al., 2021). Moreover, mental and social determinants are most likely to compound and generate multifaceted interaction, which influences the physical health and health-seeking behaviour. This not only applies the epidemiological research, but also to preventive health policies and interventions. A narrow disease management strategy ignores the protective quality of mental health in both the upstream and integrative methods that combine the psychological components of the health systems, which can aid in creating disparities and more holistic results. Scholars and even policymakers say that by making psychological well-being the centre of the policies of the health care of the population, the approaches to the development and implementation of policies in the sphere of the health care system can change to proactive and preventative models that would foster resilience and promote prosperity (Ni et al., 2020; Harris, 2010).

The existing literature clearly demonstrates the links between well-being and various health outcomes; however, much of this evidence remains fragmented and lacks integration. Positive overall health effects, such as decreased cardiovascular disease, enhanced immune responses, and less inflammation, have been consistently linked to psychological well-being (Kubzansky et al., 2018; Hernandez et al., 2018). Positive well-being has also been observed to be a predictor of longevity, implying that it has a life course effect (Huppert, 2009). Meanwhile, studies have shown that well-being is also strongly connected to its social determinants (employment, social cohesion, and the sense of belonging). Incidentally, poorer psychological well-being has been linked to job insecurity among precarious workers (Abdul Jalil et al., 2023), whereas a higher subjective well-being has been linked to social cohesion, in terms of community and environmental conditions, such as access to urban green space (Jennings and Bamkole, 2019). In the same manner, meaningful engagement in day-to-day activities and a sense of belonging are essential to strengthen psychological resilience and well-being (Haim-Litevsky et al., 2023). These works support the notion that psychological well-being cannot be discussed outside the broader social and environmental context within which people act.

However, there are still major limitations in the literature. Most studies deal with single determinants of health, mental, social, or physical, without properly looking at the interplay between these domains to generate both individual and population-level outcomes (Das et al., 2020). Even though it is established that psychological well-being can be directly correlated with physical health behaviours (exercise, smoking, diet, etc), little research directly measures the role of these behaviours in mediating the well-being-health relationship. On the same note, although social support and social cohesion have been found to have a moderating effect on stress and health, there is a dearth of research that investigates them as moderating variables that can cause or alter the magnitude or direction of the relationship between psychological and population health outcomes. This type of siloed solution is risky because it can obscure the multidimensional nature of health, and it may suggest that

interventions may only be useful to a restricted range. There is a need for an integrative and holistic framework that captures the dynamic interplay among psychological, social, and physical determinants of health.

The other limitation of the current body of evidence is that it is not representative of different populations and settings on equal footing. Much of the research has concentrated on high-income countries, in which emphasis on such populations, in comparison to low- and middle-income ones, has been relatively smaller, in which structural disparities and cultural distinctions may distinctly affect well-being. The need to target specific populations was highlighted in such research as the one on the health-promoting behaviour of Chinese university students (Yang et al., 2025) or self-efficacy in trainee teachers in Europe (Gilar-Corbi et al., 2024), but is rather an exception than a rule. Moreover, integrative studies are still underrepresented, although the studies beyond the unidimensional models are also demanded (Smith, 2024; Wong et al., 2025). Such disjuncture is not only a methodological problem, but also conceptual silos between fields of science, such as psychology, sociology, and public health.

These research gaps imply a high magnitude. Without integrative evidence, policymakers may not take the role of psychological well-being and contribute to population health or design a policy intervention to simultaneously tackle multiple determinants. To take an example, interventions grounded in encouraging physical activity and not grounded in social isolation are not as effective as those grounded in both. Likewise, workplace wellness programmes which target stress management but not job insecurity per se, may be missing a chance to help deal with job insecurity, which has been evidenced to significantly impact psychological well-being (Abdul Jalil et al., 2023). In order to develop successful public health strategies, one needs to investigate not only whether the psychological well-being is important, but also how the impacts of the former are conditioned by the interactions with social and physical determinants.

This paper seeks to address these difficulties by integrating an approach. It is based on the previous evidence that ties psychological well-being to morbidity, mortality, and health disparities (Trudel-Fitzgerald et al., 2019; Ni et al., 2020) that the current study aims to determine the multidirectional relationships between mental, social, and physical determinants of health. Through investigation of the interaction of psychological well-being with lifestyle determinants, chronic disease status and social support networks, the study will help to establish the pathways and possible leverage points to be used in targeted interventions by the public health. It, in this way, will not just help to contribute to the scholarly discussions but also to the creation of comprehensive, prevention-based health policies.

The research investigation is also supported by the increasingly emerging awareness of the fact that mental and social aspects have to be incorporated into the progress of the physical health of the population by the public health systems. The World Health Organisation and many national health agencies have been keen to remind that sustainable health gains will only be achieved through focusing on the well-being and quality of life rather than the outcome of diseases. Midlife studies (Brim et al., 2019; Kang, 2022) and age-stratified work stress and exhaustion (Hsu, 2019) are some of the sources that provide evidence that well-being is a matter of life-course integration, thus supporting the idea of integrative approaches. Collectively, these findings help highlight the necessity of reconsidering the concept of public health using a multidimensional approach.

1. To examine the direct relationship between psychological well-being and public health outcomes
2. To analyze the moderating role of social determinants in shaping this relationship
3. To assess how physical health determinants interact with psychological well-being to influence overall population health

2. Methods

2.1 Study Design

This research used an integrative cross-sectional design to examine the association between psychological well-being and health outcomes in society. Its design was chosen to enable the analysis

of mental, social, and physical determinants of health within the same frameworks. The cross-sectional design provided an image of the relationship between variables among a nonhomogeneous population of people.

2.2 Population and Sampling

The sample size was limited to a population of adults aged 18 and above years and both urban and rural populations were also sampled to give a representation of a diversity in socioeconomic and demographic factors. The stratified random sampling was done to take into consideration age, gender and socioeconomic differences.

The minimum sample size of 385 was calculated based on a priori power analysis (0.05, power = 0.80, small-to-moderate effect size). In order to enhance consistency of subgroups analysis, 500 participants were selected and incorporated into the final data set.

2.3 Data Collection

Data were collected through structured, self-administered questionnaires and validated psychological scales:

- **Psychological Well-Being:** Measured using the Ryff Psychological Well-Being Scale and the WHO-5 Well-Being Index, capturing dimensions such as autonomy, purpose in life, and overall life satisfaction.
- **Public Health Outcomes:** Operationalized through self-rated health status, reported morbidity and chronic illness prevalence, and healthcare utilization (visits to healthcare facilities in the past year).
- **Social Determinants:** Collected through items measuring socioeconomic status (education, income, occupation), employment stability, and perceived social support.
- **Physical Determinants:** Lifestyle indicators such as physical activity frequency, dietary patterns, body mass index (BMI), and chronic disease status.

All participants provided informed consent, and ethical approval was secured from the institutional review board prior to data collection.

2.4 Analytical Approach

Data analysis was conducted in four sequential stages:

1. **Descriptive Analysis:** Frequencies, means, and standard deviations were computed to summarize demographic and baseline characteristics.
2. **Bivariate Analysis:** Correlations (Pearson's r) and chi-square tests were conducted to assess associations between psychological well-being and public health outcomes.
3. **Multivariate Analysis:** Hierarchical multiple regression models were applied to estimate the predictive strength of psychological well-being on health outcomes, controlling for demographic variables.
4. **Mediation and Moderation:** Tested using the PROCESS macro in SPSS, where social determinants were specified as moderators and physical determinants as mediators in the relationship between well-being and health outcomes.

Reliability and validity checks were performed using Cronbach's alpha for internal consistency and exploratory factor analysis for construct validity. Statistical significance was set at $p < 0.05$. All analyses were conducted using SPSS version 26.

3. Results

3.1 Sociodemographic Characteristics

A total of 500 respondents make up the study sample and the mean age of the respondents was 38.6 years ($SD = 12.4$). The gender balance was at an equal level (52 and 48) women and men respectively. Two-thirds of the respondents resided in cities (64%), and slightly over a third of them resided in the countryside (36%). The education levels varied with 40 per cent having a university degree, 37 per cent having a secondary degree and 23 per cent having a primary degree or lower.

Table 1 indicates not only the distributions of these in sociodemographic indicators but also shows the diversity of the sample. It should be mentioned that the proportion of university-educated respondents is rather high meaning that there is an educated sub-sample that should be considered when describing further associations.

Table 1. Sociodemographic Characteristics of the Study Population (N = 500)

Variable	n	%
Age (years), Mean (SD)	38.6 (12.4)	–
Gender		
Female	260	52.0
Male	240	48.0
Residence		
Urban	320	64.0
Rural	180	36.0
Education		
University	200	40.0
Secondary	185	37.0
Primary or less	115	23.0

Figure 1 displays the distribution of the scores of psychological well-being. The highest score was 18 and the lowest score was 94 with a mean of 68.2 (SD = 14.1). The histogram shows that the distribution is close to the normal distribution, with a slight skew to the right to indicate that majority of the participants were reporting moderate-to-high level of well-being.

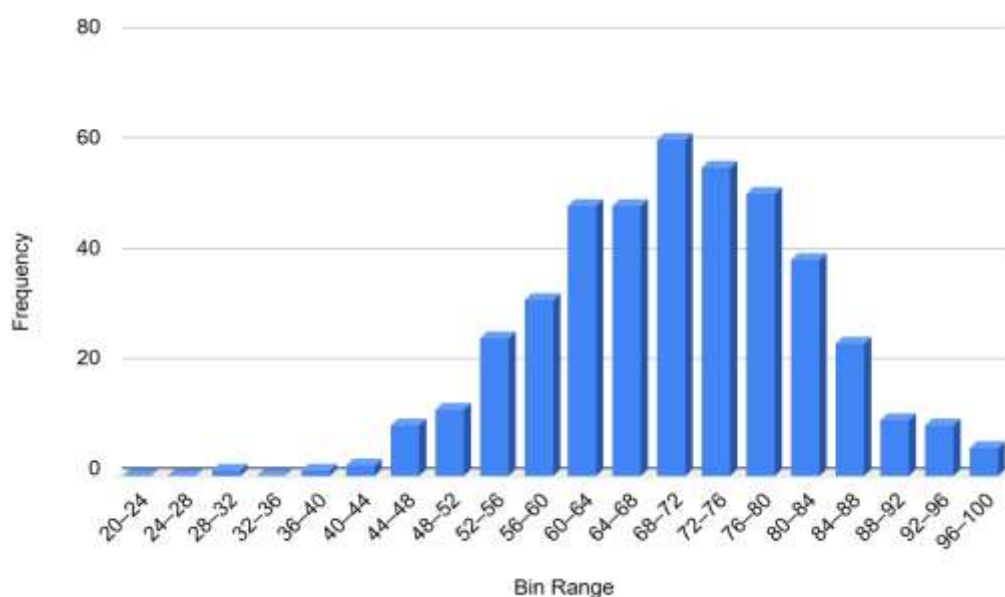


Figure 1. Distribution of Psychological Well-Being Scores

3.2 Health-Related Characteristics

In terms of health, 36 percent of surveyed individuals experienced at least one chronic condition of health including diabetes or hypertension. On a more positive vein, there was 62 percent regular exercise (3 times or more per week). The prevalence of obesity was 18 percent and 27 % reported that they were current smokers. These health-related traits are shown in Table 2. Taken together, the results present a mixed health profile: while a considerable proportion of individuals engage in healthy behaviors, a substantial segment remains at risk due to factors such as chronic disease, obesity, and smoking.

Table 2. Health-Related Characteristics of the Study Population (N = 500)

Variable	n	%
Chronic Illness	180	36.0
Regular Physical Activity	310	62.0
Obesity	90	18.0
Smoking	135	27.0

3.3 Associations Between Psychological Well-Being and Health Outcomes

Bivariate analyses demonstrated that higher levels of psychological well-being were strongly associated with better health outcomes. Specifically, well-being correlated positively with self-rated health ($r = .47, p < .001$) and negatively with morbidity count ($r = -.34, p < .001$) and healthcare utilization ($r = -.29, p < .001$). Table 3 details these correlations, highlighting that individuals with higher psychological well-being consistently reported better subjective health and lower levels of illness burden and healthcare dependence.

Table 3. Correlations Between Psychological Well-Being and Public Health Outcomes

Variable	Correlation with Well-Being (r)	p-value
Self-Rated Health	0.47	< .001
Morbidity Count	−0.34	< .001
Healthcare Utilization	−0.29	< .001

Hierarchical regression confirmed these relationships after adjusting for age, gender, education, and income. As illustrated in Figure 2, psychological well-being remained a strong predictor of both higher self-rated health ($\beta = .41, p < .001$) and reduced healthcare utilization ($\beta = -.28, p < .001$). Notably, the explained variance (R^2) was also higher in the model that included psychological well-being, 22 percent, compared to 37 percent, which illustrated its value as a major factor to be considered, besides sociodemographic factors.

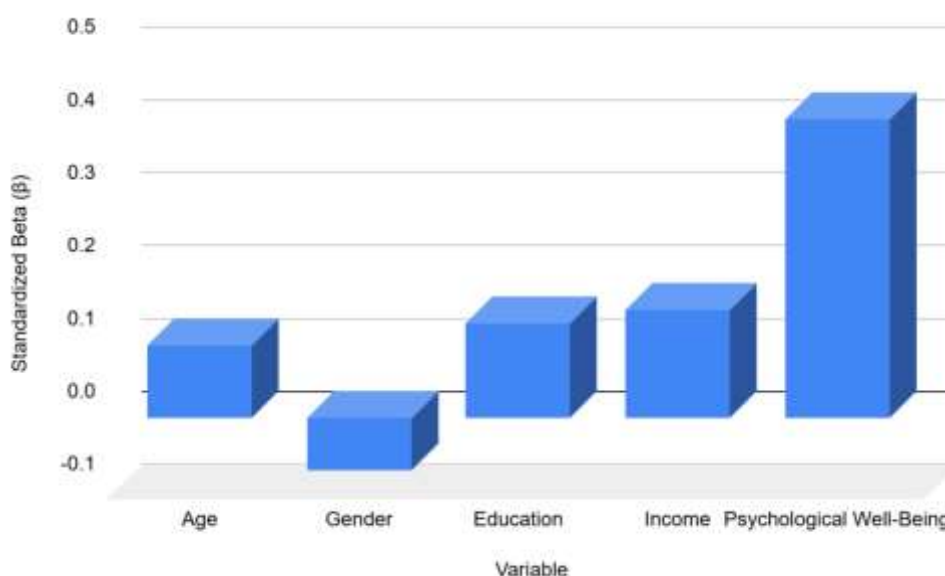


Figure 2. Hierarchical Regression Model Predicting Health Outcomes from Psychological Well-Being

3.4 Mediation and Moderation Analyses

Mediation and moderation analyses were done in order to investigate underlying mechanisms.

First, exercise was a mediating variable between self-percentage health and psychological well-being. The indirect effect was 0.11 (95% CI [0.07, 0.16], $p < .001$), which means that increasing the level of well-being also increased the occurrence of physical activity which further benefited health outcomes. Second, social support had an important moderating effect on the association between psychological well-being and healthcare utilisation. The interaction term ($= -0.17$, $p = .003$) revealed that the positive influence of well-being on healthcare use was greater among participants who had high levels of social support. As Figure 3 shows, low social support participants less pronounced well-being had significantly more health care access even at moderate-to-high levels of well-being, and strong support network respondents always reported lower access.

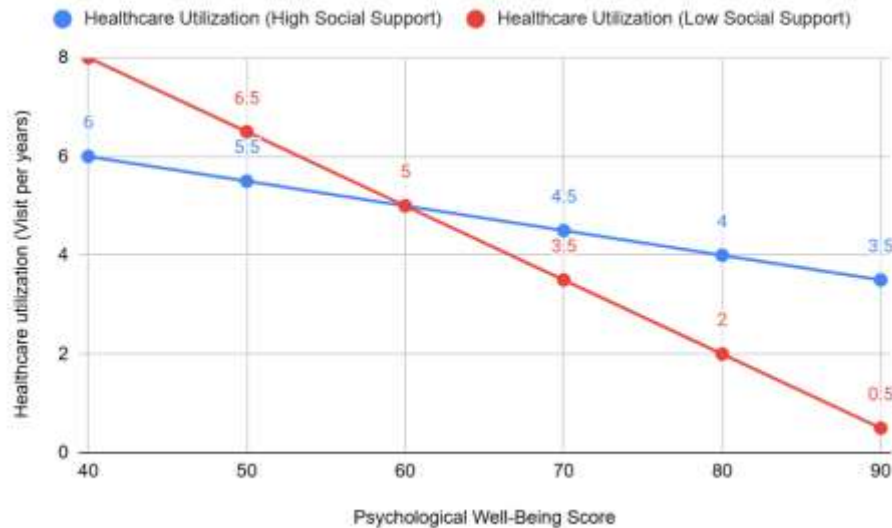


Figure 3. Interaction Between Psychological Well-Being and Social Support in Predicting Healthcare Utilization

The full results are presented in Table 4, which reports both the mediation and moderation effects, including effect sizes, confidence intervals, and significance levels.

Table 4. Mediation and Moderation Effects of Social and Physical Determinants

Path/Test	Effect Size (β /Indirect)	95% CI	p-value
Well-Being → Physical Activity → Self-Rated Health (Mediation)	0.11	0.07, 0.16	< .001
Well-Being × Social Support → Healthcare Utilization (Moderation)	−0.17	−0.28, −0.06	.003

3.5 Subgroup Analyses and Robustness Checks

Stratified analyses revealed gender and age differences. Among women, the effect of psychological well-being on self-rated health was stronger ($\beta = .46$, $p < .001$) compared with men ($\beta = .34$, $p < .001$). Younger adults (18–35 years) also showed more pronounced associations between well-being and health outcomes compared to older cohorts.

Robustness checks were conducted by controlling for BMI, smoking status, and diet quality. Results remained consistent, indicating that the associations between psychological well-being and health outcomes were stable across different model specifications.

4. Discussion

This paper has explored the causes and effects of interrelationship between psychological well-being and outcomes of public health, with consideration of how physical and social determinants constitute this relationship. The results indicate that psychologically well-adjusted people indicate a superior self-reported health, reduced burden of morbidity, and decreased healthcare use. Notably, physical

activity was identified to mediate the well-being-health relationship to some extent, and social support was the Go-between of the impact of psychological well-being on healthcare use. These findings point to the possibility of a dual role of psychological well-being as a direct predictor of health outcomes in addition to a broader complex of interacting behavioral and social factors. The results are very much aligned with the previous studies that emphasise the protective importance of a healthy mind. Previous research has indicated that well-being lowers the risk of cardiovascular disease, enhances immune performance, and has a role in longevity (Kubzansky et al., 2018). Our findings support these connections and emphasise physical activity as one of the behavioural mechanisms by which well-being has its effects. This social support moderation resonates with the fact that membership and significant involvement reinforce resilience and herd against poor health outcomes (Haim-Litevsky et al., 2023). A combination of these observations suggests that health research and policy should consider integrative approaches, in the sense that psychological, social, and physical determinants are not independent of each other. Theoretically, this research can help to improve the integrative health models by empirically proving the fact that well-being and health are multidirectional. Although previous studies have tended to analyse these determinants independently, our analysis reveals that psychological well-being is an independent predictor and a factor rooted in broader social and behavioural networks. This helps in the transition to ecological and biopsychosocial models of health, which focus on interaction between a variety of determinants (Das et al., 2020). Furthermore, the results are reminiscent of emerging network-based strategies of mapping health determinants, in which well-being is perceived as a focal node and can influence, as well as be influenced by, other health-related factors (Pietrabissa et al., 2025). The inclusion of the psychological well-being within such an integrative framework not only progresses the theoretical arguments, but also prepares the subsequent empirical research even more potent.

This has a major implication on the practise of public health. The fact highlights that the need assessment of the promotion of psychological well-being can be considered as the preventive measures that can improve the results of the population health and the overall healthcare costs. Community-based programmes that enhance social support, workplace programmes that reduce job stress and policies that augment environments that support belonging and cohesion may help in magnifying the benefits of well-being. The urgency of these methods was ensured by the COVID-19 pandemic: healthcare professionals with a low level of well-being reported increased stress, burnout, and worse health outcomes, and the neglect of psychological aspects of work aggravates the situation in the case of a pandemic (De Kock et al., 2021). In comparison, more resilient health systems and populations may be produced by policies that combine psychological well-being with promotion of physical health. One must recognize several limitations. A cross-sectional design does not allow a causal inference; longitudinal designs are needed when the directionality of the associations should be proved. The sample size was adequate to conduct subgroup analyses, but it was narrowed to one cultural situation, due to which generalizability might be limited. Listing self-report measures although validated, there is a reporting bias and/or cultural difference in the perceptions of health and well-being. Moreover, the analysis was restricted to a specific number of mediators and moderators, not considering such aspects of the study as dietary habits, work-related situations, or structural inequalities in general, which can also be the determinants of the observed relations.

These limitations can be overcome in future studies by implementing longitudinal and cross-cultural designs in explaining the causal processes and increasing the external validity. Specifically, intervention studies are needed, involving psychological, social support, and health behaviour interventions, to determine whether these synergistic benefits are achieved with integrated interventions only. More complex modelling tools, e.g., network analysis or dynamic systems modelling, might also be more informative about how various determinants interact over time (Pietrabissa et al., 2025). These guidelines would complement the current discoveries and would help to come up with more inclusive health perception frameworks. This paper reveals that psychological well-being is one of the main determinants of health, having direct predictive outcomes and being in interaction with social and physical factors. The findings not only verify and build on current research

but also add to the development of integrative health models and emphasise the need to focus policies and interventions on well-being to become an integral element of public health. With societies experiencing increased strains of chronic illness and mental distress, the inclusion of psychological well-being into prevention programmes and policy paradigms is scientifically warranted and strongly needed to achieve sustainable gains in population health.

5. Conclusion

The findings of this research indicate that psychological well-being is a primary determinant of population health outcomes, both directly impacting self-reported health, morbidity, and healthcare use, and also indirectly acting through behavioural mechanisms like physical activity, and influenced by contextual resources such as social support. The research exemplifies the integrative nature of health through showing how psychological well-being is associated with the social and physical determinants, and this is difficult to achieve by reductionist models that consider mental, social, and physical health domains independently. Instead, the evidence indicates that the adoption of holistic frameworks, which have sensitization to the multidirectional and reinforcing nature of these determinants is necessary. This is not merely a method of theory building but has drastic policy and practise consequences. The initiatives of population health should not only aim at the control of diseases, but also should include frequent encouragement of psychological well-being as a preventive measure that should include interventions to develop social support and promote healthy behaviours and to make the environment inclusive and belonging. Combined strategies, such as healthcare systems, workplaces, schools, and community organisations, are required to make sure that well-being is incorporated in the design of the public health initiatives. In a time of chronic disease and mental health problems, where the burden on the world healthcare has never been heavier than ever, this kind of integration provides a solution to healthier populations and to healthier healthcare. In general, the inclusion of the psychological well-being as an essential component of the public health policy, is scientifically sound and much-needed to foster the concept of health equity and the improved long-term outlook of various populations.

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