

# Research Paper: Investigating the Relationship Between Perceived Social Support and Preventive Behaviors in the COVID-19 Epidemic Mediated By Hope and Mental Wellbeing: A Case Study of Women Living in Tehran City, Iran



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## ABSTRACT

**Background:** According to the World Health Organization, preventive measures are the only non-pharmacological method to combat the COVID-19 epidemic. This study aimed to investigate the relationship between perceived social support and preventive behaviors mediated by the variables of life expectancy and mental wellbeing.

**Materials and Methods:** This study is applied in terms of purpose and was conducted by survey method. The statistical population included women living in Tehran City, Iran, with a sample size of 428. The study data were collected using the preventive behavior scale, mental wellbeing scale, Snyder hope scale, and multidimensional perceived social support scale. The obtained data were analyzed using SPSS 25 and AMOS 23 software.

**Results:** The study results showed a positive and significant relationship between perceived social support and mental wellbeing, between perceived social support and life expectancy, and between mental wellbeing and life expectancy. Also, life expectancy and mental wellbeing variables mediate between perceived social support and preventive behaviors.

**Conclusion:** Considering the critical role of women in family management and preventive measures during the COVID-19 epidemic, strengthening social support networks, hope, and mental wellbeing should be considered.

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## 1. Introduction

The new coronavirus 2019 (COVID-19) is a global pandemic [1]. The first recorded case of the COVID-19 virus was reported in December 2019 in Wuhan, China, and soon the disease spread throughout the world. This crisis has brought about significant changes in people's lives [2]. According to the World Health Organization, the number of COVID-19 cases was 146871882 until April 2021, and the number of deaths was recorded 3104743 on this date worldwide. In Iran, 2396204 cases and 69574 deaths were reported due to the virus (the World Health Organization, April 26, 2021). Governments have taken preventive measures on their agenda, such as physical distancing, the use of masks, frequent hand washing, and less use of public transportation. Changes in social interactions, job loss, business closures, and financial instability resulted in isolation, mental disorders, increased depression and anxiety, and decreased life satisfaction [3-6].

Many experts have emphasized the protective role of social support, mental wellbeing, and hope in preventing mental illness and reducing its adverse effects. Social support is defined as supportive measures available to individuals through social relationships with individuals, groups, and communities [7]. Most studies have acknowledged the vital role of social support in achieving success [8] and reducing feelings of isolation and loneliness [9]. Job self-efficacy [10] and decreasing suicide [11]. A survey of 325 Filipino nurses showed that social support was a factor in lowering nurses' anxiety during the COVID-19 epidemic [12].

Social support is an influential factor in increasing mental wellbeing. Mental wellbeing refers to people's cognitive and emotional evaluation of the quality of life and life satisfaction [1]. Russell believed that mental wellbeing is people's perceptions and mental insights from their life experiences. Mental wellbeing is a multidimensional concept and includes two dimensions of emotional wellbeing and positive functioning. Emotional wellbeing consists of the perception of happiness, life satisfaction, and balance between positive and negative emotions. Thus, mental wellbeing is defined by emotional wellbeing and positive functioning and includes elements of received happiness, life satisfaction, the balance of positive and negative emotions, psychological wellbeing, and social wellbeing. These qualities are not far from people's daily behavior [13]. Studies show that increasing mental wellbeing effectively reduces anxiety and depression [14, 15]. The results of a study among

Polish workers showed that reduced mental wellbeing adversely affected their mental health during the COVID-19 epidemic. This study shows the vital role of social relations between individuals in society and concludes that there is a relationship between mental wellbeing and communication [16].

Along with mental wellbeing, hope is a positive factor in critical situations and effectively maintains people's health in society. Some researchers have defined hope as a positive attitude to life and the ability to have an optimistic outlook [17]. Hopeful thinking is a learned and dynamic feature that enables the future vision. Hope plays a vital role in making people feel confident about the future and increasing their ability to face challenging situations and overcome obstacles [18]. Studies show that hope plays a vital role in coping with difficult situations [19-22] in achieving success [23, 24], and in promoting academic and career motivation [25]. Carmel Flaskas refers to the complex dynamics of hope and despair in intimate relationships in family, community, and social relationships. These relationships can weaken or strengthen hope.

Evidence suggests that the COVID-19 epidemic has socially and economically more affected women than men. Regardless of employment, women spend more time on household chores and caring for children, the sick, and the elderly. Also, these duties have increased during the COVID-19 epidemic [26, 27]. Statistics show an increase in domestic violence during the epidemic. Within a week after the announcement of the closure and quarantine in France, reports of domestic violence increased by 30% [28]. In February 2020, the China Police Department reported a threefold increase in domestic violence compared to the same date in 2019, 90% of which was due to the COVID-19 epidemic. In the UK, deaths from domestic violence have more than doubled during the coronavirus epidemic [29]. Considering the importance of physical and mental health of people in the community and the adverse effects of isolation and fear caused by this epidemic, and the women's role during the COVID-19 epidemic in bearing the heavy burden of home quarantine and resulting psychological damage [27, 30-32], this study examines the relationship between social support and preventive behaviors of COVID-19 through mental wellbeing and hope in the statistical population of women.

## 2. Materials and Methods

The present study is applied in purpose and was conducted by survey method. The study's statistical population comprised all women living in Tehran City, Iran. A

sample of 115 to 285 participants is sufficient to detect the indirect effect among the variables [33]. In this study, the sample size was estimated to be 385 using Cochran's formula. The study samples were collected by random sampling method. Because of the possibility of dropout and incomplete questionnaires, 428 questionnaires were completed and evaluated. The inclusion criteria for female participants were as follows: willingness to complete questionnaires and being 18 years old and older. The exclusion criteria were reluctance to continue the study and sending incomplete answers. In this study, the principle of confidentiality of participants' information was observed according to the research ethics criteria. The questionnaires were distributed online from April 4 to April 19, 2020. Informed consent was obtained from the participants before answering the questions (it was cited in an article at the beginning of the questionnaire). Finally, the research data were analyzed by SPSS v. 25 and AMOS v. 23. In data analysis and psychometric measurement of the preventive behaviors questionnaire, the exploratory factor analysis method was used. To evaluate the relationship between variables, we used the Pearson correlation test. To assess the reliability of the questionnaire, the Cronbach  $\alpha$  was calculated. To assess the mediating role, we used the structural equation model and to evaluate the direct and indirect effects between variables, the bootstrap method. The study data were collected using the following tools:

### Preventive Behavior Scale

The preventive behavior scale is a list of preventative behaviors used to assess the extent of people's interaction to protect themselves against COVID-19. This tool has six items that are scored on a 5-point Likert scale. This questionnaire has been validated and standardized by Yildirim and Arslan in their research on the population of Turkey. In their study, while the content validity of the questionnaire has been confirmed, the Cronbach  $\alpha$  of the questionnaire was estimated at 0.78 [34]. At first, in a written letter, the tool designers were asked their permission to implement the scale in Iranian society. To use the questionnaire and distribute it among women, it was translated into Farsi by a familiar expert in English and then re-examined by two translators. In the next step, the translation questionnaire was back-translated.

### Mental Wellbeing Scale

The mental wellbeing scale is derived from the WHO-10 scale, which is derived from the 28-item rating scale using question-answer theory analysis and has been used

in a multicenter study in 8 different European countries. The 28-item scale is derived from the Zung scale for depression, stress, and anxiety, as well as the wellbeing and general health scale. The mental wellbeing scale is a short 5-item self-report scale that measures positive wellbeing over the past two weeks based on a 6-point Likert scale from "never" to "always". The results of exploratory factor analysis and confirmatory factor analysis showed that the factor structure of this index is a one-factor indicator. The internal consistency of the questions of this index was high, and its Cronbach  $\alpha$  was equal to 0.89 [35].

### Snyder Hope Scale 2

Snyder hope scale has 12 questions. Its scoring is based on an 8-point Likert scale, from "completely incorrect" with a score of 1 to "completely correct" with a score of 8. The hope scale has two subscales: agency 3 (meaning goal-directed energy), determined by questions 2, 9, 10, 12, and the pathways 4 (planning to accomplish goals) by questions 1, 4, 6, and 8. It also has filler questions of 3, 5, 7, and 11. Kermani et al. (2011) examined the scale's reliability using the Cronbach  $\alpha$  method. They reported  $\alpha$  values of 0.86 for the whole scale, 0.77 for the subscale of factor thinking, and 0.79 for the subscale of paths [36].

### Perceived Social Support Multidimensional Scale

The perceived social support multidimensional scale has 12 items that measure perceived support from three sources: family, friends, and important others. The scale is scored on a 5-point scale from "strongly disagree" to "strongly agree". In Roostami et al.'s (2009) study, the Cronbach  $\alpha$  was obtained between 0.76 and 0.89 [37].

## 3. Results

Based on the findings, 35.5% of the subjects had a diploma, and 12.6% had a master's degree or higher. Also, 74.1% of the participants were married, 25.9% were single, 74.3% were homemakers. About 6.3% of study participants lost their jobs during the epidemic, 20.6% were infected with coronavirus, and 24.5% lost at least one relative due to COVID-19. The subjects' Mean $\pm$ SD age was 31.80 $\pm$ 10.49 years (Table 1).

According to the results of Table 2, the main variables of the study have a positive and significant correlation with each other in pairs ( $P < 0.05$ ). As the social support variable increases, the variables of mental wellbeing, life expectancy, and preventive behavior increase significant-

**Table 1.** Assessing the status of the leading research variables in the subjects

| Variables                                | Mean±SD     | Median | Minimum | Maximum |
|------------------------------------------|-------------|--------|---------|---------|
| Agency                                   | 23.23±6.64  | 25     | 4       | 32      |
| Pathways                                 | 23.77±5.52  | 24     | 5       | 32      |
| Life expectancy                          | 47.01±11.33 | 49     | 13      | 64      |
| Mental wellbeing                         | 11.73±5.98  | 11     | 0       | 25      |
| Family support                           | 8.88±4.31   | 8      | 4       | 20      |
| Friends support                          | 13.10±4.88  | 13     | 4       | 20      |
| Important others support                 | 8.98±4.38   | 8      | 4       | 20      |
| Social support                           | 30.96±10.98 | 30     | 12      | 60      |
| The first factor of preventive behavior  | 12.13±2.40  | 13     | 3       | 15      |
| The second factor of preventive behavior | 12.84±1.81  | 13     | 5       | 15      |
| Preventive behavior                      | 24.96±3.53  | 26     | 11      | 30      |

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ly. Also, with increasing life expectancy and mental wellbeing, the rate of doing preventive behavior increases.

The results showed that the variables of mental wellbeing ( $0.29 > 0.05$ ) and preventive behavior ( $0.83 > 0.05$ ) did not differ significantly regarding marital status ( $P > 0.05$ ). Therefore, these two variables have no significant relationship with marital status. The variables of life expectancy ( $0.001 < 0.05$ ) and social support ( $0.001 < 0.05$ ) have significant differences regarding the marital status ( $P < 0.05$ ). So, the life expectancy with a Mean±SD of  $48.14 \pm 10.91$  and social support with a Mean±SD of  $42.13 \pm 10.78$  are higher in married women than single women.

The variables of life expectancy ( $0.02 < 0.05$ ), mental wellbeing ( $0.01 < 0.05$ ), and preventive behavior ( $0.03 < 0.05$ ) have significant differences in terms of employment status ( $P < 0.05$ ). Therefore, these three variables have a significant relationship with employment

status. In other words, life expectancy with a Mean±SD of  $51.62 \pm 8.23$  and mental wellbeing with a Mean±SD of  $14.26 \pm 5.98$  were reported higher in women working in the public sector than women with other occupations. The Mean±SD of preventive behavior in women who lost their jobs with the onset of COVID-19 was  $26.26 \pm 3.18$ , which was higher than the preventive behavior of women in other occupations.

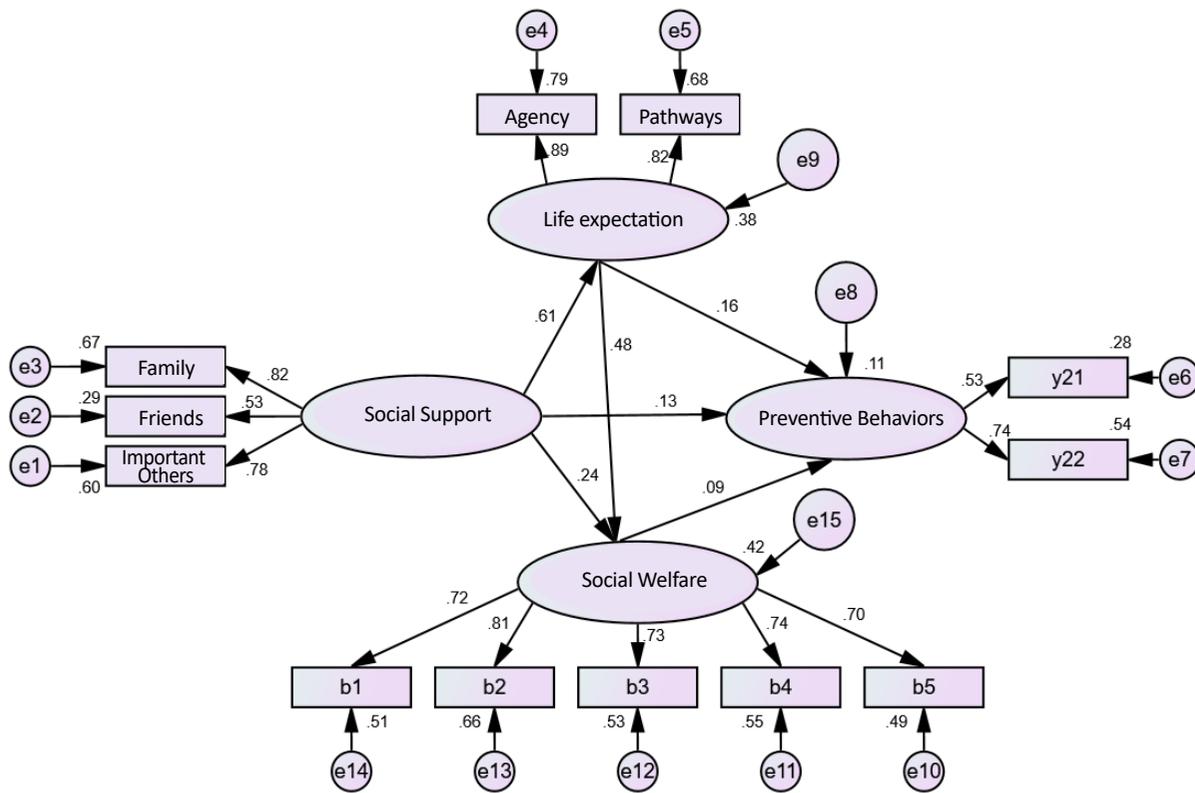
The Cronbach  $\alpha$  value of the preventive behaviors questionnaire was estimated at 0.69.

According to the results of Table 3, the direct effect of social support on life expectancy, social support on mental wellbeing, and life expectancy on mental wellbeing have become significant ( $P < 0.05$ ). So that with increasing social support, life expectancy and mental wellbeing of the studied people increases and with increasing life expectancy, their mental wellbeing increases. The direct

**Table 2.** Results of the Pearson correlation coefficient Test to Examine the correlation between the main variables of the research

| Variables              | 1                   | 2                    | 3                   | 4 |
|------------------------|---------------------|----------------------|---------------------|---|
| 1. Life expectancy     | 1                   |                      |                     |   |
| 2. Mental wellbeing    | 0.53 ( $P < 0.01$ ) | 1                    |                     |   |
| 3. Social support      | 0.52 ( $P < 0.01$ ) | 0.44 ( $P < 0.01$ )  | 1                   |   |
| 4. Preventive behavior | 0.21 ( $P < 0.01$ ) | 0.15 ( $P < 0.002$ ) | 0.21 ( $P < 0.01$ ) | 1 |

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**Figure 1.** Results of the final model of the relationships between the main variables (Standard Estimates)

effect of none of the variables of social support, life expectancy, and mental wellbeing on preventive behaviors has not become significant ( $P < 0.05$ ).

According to the results of Table 4, the indirect effects of social support on the variables of preventive behaviors and mental wellbeing are significant ( $P < 0.05$ ). Hence, the variables of life expectancy and mental wellbeing to-

gether play a mediating role between social support and preventive behaviors. Also, the life expectancy variable plays a mediating role between social support and mental wellbeing.

In addition, the fit indices confirmed the appropriateness of the structural equation model and showed that

**Table 3.** The extent of direct effects of the main variables of the research using the bootstrap method in the structural equation model

| Paths                                   | Estimated Value | Standard Error | P     |
|-----------------------------------------|-----------------|----------------|-------|
| Social support → Life expectancy        | 0.61            | 0.05           | 0.001 |
| Social support → Mental wellbeing       | 0.24            | 0.07           | 0.002 |
| Social support → Preventive behaviors   | 0.13            | 0.11           | 0.24  |
| Life expectancy → Preventive behaviors  | 0.16            | 0.11           | 0.15  |
| Mental wellbeing → Preventive behaviors | 0.09            | 0.12           | 0.49  |
| Mental wellbeing → Life expectancy      | 0.48            | 0.07           | 0.001 |

**Table 4.** The extent of indirect effects of the main variables of the research using the bootstrap method in the structural equation model

| Paths                                  | Estimated Values | Standard Error | P      |
|----------------------------------------|------------------|----------------|--------|
| Social support → Preventive behaviors  | 0.15             | 0.06           | 0.02   |
| Life expectancy → Preventive behaviors | 0.04             | 0.06           | 0.47   |
| Social support → Mental wellbeing      | 0.29             | 0.05           | <0.001 |

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the collected data support the theoretical model of the research (Table 5).

#### 4. Discussion

The COVID-19 crisis was an unpredictable epidemic that brought about dramatic changes in various areas of personal and social life. The non-pharmacological recommendations of the World Health Organization for reducing the spread of the virus include preventative behaviors, such as frequent handwashing, reducing hand-to-face contact, using masks in public places, and social distancing. During the COVID-19 epidemic, many professionals conducted research in different health areas. Researchers believe that the social and behavioral sciences can provide valuable insights into the management of this epidemic and help policymakers, leaders, and the general public understand better, manage threats, guide different aspects of social and cultural life, improve scientific communication, regulate individual and collective interests, apply effective leadership, and provide social and emotional support [38, 39]. Therefore, the present study was conducted to investigate the relationship between social support in self-care behaviors medi-

ated by life expectancy and mental wellbeing variables in the statistical population of women.

The results of this study showed that the preventive behaviors questionnaire in COVID-19 has acceptable reliability and validity for use in the Iranian population. Findings showed that according to the P value of 0.001, which is less than 0.05, and regarding the significant relationship between social support and life expectancy in women, the first hypothesis of the research has been confirmed. In other words, more perceived social support increases life expectancy. The findings of this study are consistent with the studies of Guthrie and Fruith (2018) [23], Bekas Yakani (2020) [39], Bojmel et al. (2021) [18], and Shirazi et al. (2015) [40] that social support plays a vital role in increasing life expectancy in critical situations, especially COVID-19 epidemic. The study of Feng and Yin (2021) [41] showed that creating a positive feeling after appreciation of the treatment staff and promoting social support is an influential factor in reducing depression and increasing life expectancy during the COVID-19 epidemic. This finding can be justified because social support acts as a protective carrier in special and critical situations, reduces stress and anxiety caused by those vital situations, and increases life

**Table 5.** General indicators of structural equation model fit

| Fit Indices |                                                 | Estimated Values |
|-------------|-------------------------------------------------|------------------|
| Absolute    | Chi-square                                      | 123.91           |
|             | Degrees of freedom                              | 48               |
|             | Probability value                               | 0.001            |
|             | Relative Chi-square                             | 2.58             |
| Comparative | Incremental Fit Index (IFI)                     | 0.96             |
|             | Tucker-Lewis Fit Index (TLI)                    | 0.95             |
|             | Comparative Fit Index (CFI)                     | 0.96             |
|             | Bentler-Bonett Normed Fit Index (NFI)           | 0.94             |
|             | Relative Fit Index (RFI)                        | 0.92             |
| Parsimony   | Parsimony Normed Fit Index (PNFI)               | 0.68             |
|             | Parsimony Comparative Fit Index (PCFI)          | 0.70             |
| Error       | Root Mean Square Error of Approximation (RMSEA) | 0.06             |

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expectancy. The study of Pasyar (2020) [42] showed a significant relationship between hope and perceived social support, and social support is a factor in increasing life expectancy in thalassemia patients. According to the second hypothesis, social support has a positive and significant effect on mental wellbeing. Findings confirmed the significant relationship between perceived social support and mental wellbeing ( $P=0.002$ ). Therefore, the above hypothesis is confirmed. The results of this study are in line with the findings of the studies of Giebel et al. (2021) [43], Xu et al. (2021) [44], Krendl and Perry (2021) [45] and showed that social support is a factor in increasing mental health. Access to social support affects the mental wellbeing of individuals during the COVID-19 epidemic and significantly reduces their anxiety. People with more access to and support by social networking are more mentally healthy. The study of Simon et al. (2021) [46] showed that quarantine and its outcomes for mental health and mental wellbeing were far lower in those who received social support than those who did not. Social support increases a person's ability to cope with critical situations.

Based on the third hypothesis, perceived social support has a significant relationship with preventive behaviors during the COVID-19 epidemic. However, the non-significance of this relationship ( $P=0.24$ ) rejects the third hypothesis of the research. The results of this study are inconsistent with the findings of the Wang et al. (2020) [47] study, which showed that social support increases preventive behaviors.

An intermediary or indirect effect occurs when the impact of an independent variable on a dependent variable is transmitted through an intermediate variable. The mediating variable is a variable that is placed between two other variables and causes their indirect relationship with each other. The results of this study showed that the variables of hope and mental wellbeing together play a mediating role between social support and preventive behaviors. To explain this finding, it can be said that mental wellbeing and hope can create the effect of social support on preventive behaviors in COVID-19 by creating positive emotions and life satisfaction as mediating factors. Hope is a positive psychological factor. People with higher life expectancy work harder to achieve life goals. This psychological force helps people cope with difficult life and stressful situations and improve their mental wellbeing and mental health. To explain this finding, we can acknowledge the role of hope and mental wellbeing in self-care and preventive behaviors in the COVID-19 epidemic.

## 5. Conclusion

Our study results show that social support has a vital role in managing the COVID-19 epidemic. Social support through mental wellbeing and life expectancy is a coping mechanism in epidemic conditions. It leads to increased self-care behaviors in society. Awareness of the vital role of preventive behaviors in the initial exposure to this disease is a factor in maintaining mental health and reducing stress and anxiety caused by fear of infection. Interventions that effectively deal with these conditions and improve physical and mental health include strengthening social networks and social support resources that increase life expectancy and mental wellbeing. Therefore, it is suggested that social factors be considered carefully and deeply along with other critical factors. In other words, the importance of social variables in the face of crises should not be overlooked. Meanwhile, women should be paid particular attention due to their multiple roles in family management and parenting. It goes without saying that any harm and threat to this group endangers the health of the whole society.

## Ethical Considerations

### Compliance with ethical guidelines

In this study, the principle of confidentiality of participants' information was observed according to the research ethics criteria. To complete the questionnaires, informed consent was obtained from the participants before they answered the questions. The consent was written in a paragraph at the beginning of the questionnaire.

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### Authors' contributions

All authors equally contributed to preparing this article.

### Conflict of interest

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