# Multi-theory Model (MTM) as a Predictor of Mental Health-related Treatment Seeking Behavior: The Use of Telehealth During COVID-19

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## Introduction

The COVID-19 pandemic has heightened psychological distress, particularly in high-risk, college student populations, and required prioritization of telehealth-based care. Help-seeking is critical for harm reduction but understanding the rapid shift to telehealth services is further obscured by significant perceived and definite barriers to utilization. Although tele-mental health services improve access to care and are perceived positively by college students, a prevalence of untreated mental health disorders remains. The objective of this study was to identify psycho-social and behavioral correlates of telehealth-based, psychological help-seeking among college students and investigate the efficacy of the Multi-theory Model of health behavior change (MTM) (Figure. 1) in predicting initiation and sustenance of tele-mental health treatment seeking behavior.

## MTM Rationale

The MTM is the only health behavior theory specifically targeted at health behavior change. The MTM consists of two components: initiation (one-time health behavior change) and sustenance (long-term continuation of a health behavior). This distinction is important for operationalizing these components independently. Health behavior initiation is determined by participatory dialogue (advantages minus disadvantages), behavioral confidence, and changes in the physical environment. Sustenance of a health behavior is determined by emotional transformation, practice for change, and changes in the social environment. The MTM is ideal for assessing tele-mental health treatment seeking behavior due to its previously demonstrated effectiveness for predicting health behavior changes across global demographics.

**Figure. 1: MTM**

Participatory Dialogue, Behavioral Confidence, Changes in Physical Environment → Initiation

Emotional Transformation, Practice for Change, Changes in Social Environment → Sustenance

**Figure. 2: Desriptive Statistics**

Table 2. Descriptive statistics for study variables with test of group means between individuals with prior telehealth use and with no prior telehealth use

| | Telehealth use individuals (n = 156) | | | | No telehealth use individuals (n = 127) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Possible range | Observed range | Mean (SD) | Cronbach's alpha | Possible range | Observed range | Mean (SD) | Cronbach's alpha | p-value |
| **Initiation** | 0 – 4 | 0 – 4 | 2.51 (1.00) | - | 0 – 4 | 0 – 4 | 1.73 (1.005) | - | < 0.001 |
| Participatory dialogue: advantages | 0 – 24 | 1 – 24 | 15.76 (3.97) | 0.82 | 0 – 24 | 0 – 24 | 14.60 (4.10) | 0.92 | 0.012 |
| Participatory dialogue: disadvantages | 0 – 24 | 0 – 22 | 10.72 (4.35) | 0.78 | 0 – 24 | 0 – 18 | 9.88 (3.64) | 0.76 | 0.068 |
| Participatory dialogue: advantages – disadvantages | -24 – +24 | 1 – 2 | 5.01 (6.92) | - | -24 – +24 | 0 – 6 | 4.73 (5.78) | - | 0.709 |
| Behavioral Confidence | 0 – 24 | 0 – 24 | 14.66 (4.57) | 0.81 | 0 – 24 | 0 – 24 | 12.68 (5.16) | 0.88 | < 0.001 |
| Changes in the physical environment | 0 – 12 | 0 – 12 | 7.42 (2.80) | 0.72 | 0 – 12 | 0 – 12 | 7.28 (3.32) | 0.84 | 0.692 |
| **Sustenance** | 0 – 4 | 0 – 4 | 2.36 (1.05) | - | 0 – 4 | 0 – 4 | 1.62 (0.985) | - | < 0.001 |
| Emotional transformation | 0 – 12 | 0 – 12 | 7.08 (2.68) | 0.81 | 0 – 12 | 0 – 12 | 6.17 (3.05) | 0.91 | 0.006 |
| Practice for change | 0 – 16 | 0 – 12 | 7.60 (2.74) | 0.64 | 0 – 16 | 1 – 12 | 7.11 (3.07) | 0.78 | 0.147 |
| Changes in the social environment | 0 – 12 | 0 – 12 | 9.69 (3.36) | 0.76 | 0 – 12 | 0 – 12 | 8.62 (3.73) | 0.88 | 0.011 |

Estimates attained for significance testing are based on Student's t-tests. *Indicates Welch's t-test.

## Methodology

College students (n = 328) were randomly recruited to participate in this cross-sectional study. Participants completed an electronic questionnaire assessing demographic information, substance use, mental health status, perceptions of stress and stigma, and direct measures of MTM constructs. Scales used: PHQ-4, AUDIT-C, Perceived Stress Scale, Self-stigma for Seeking Help Scale, and previously validated screeners for suicidality. Bivariate analysis and hierarchical multiple regression modeling tested the MTM's predictability and the significance of psycho-social and behavioral variables.

**Figure. 3: Regression Model**

Table 5. Multiple regression models for Initiation and Sustenance of telehealth use among individuals with prior telehealth use and individuals with no prior telehealth use

| Telehealth use | b | S.E. | B | p | LBCI | UBCI |
|---|---|---|---|---|---|---|
| **Initiation** | - | - | - | - | - | - |
| Perceived self-stigma | 0.018 | 0.012 | 0.136 | 0.117 | -0.005 | 0.042 |
| Perceived need for help | 0.278 | 0.241 | 0.077 | 0.250 | -0.198 | 0.755 |
| Prescription drug misuse | -0.120 | 0.164 | -0.061 | 0.468 | -0.445 | 0.205 |
| Suicide plans or attempts | 0.027 | 0.183 | 0.012 | 0.884 | -0.335 | 0.389 |
| Participatory dialogue: advantages –disadvantages | 0.035 | 0.012 | 0.249 | 0.005 | 0.011 | 0.060 |
| Behavioral confidence | 0.082 | 0.019 | 0.381 | < 0.001 | 0.044 | 0.120 |
| Changes in physical environment | 0.052 | 0.028 | 0.150 | 0.065 | -0.003 | 0.108 |

Model statistics: *Adjusted $R^2$* = 0.349, $F_{(7, 146)}$ = 12.721, $p < 0.05$

| Sustenance | | | | | | |
|---|---|---|---|---|---|---|
| **Sustenance** | - | - | - | - | - | - |
| Perceived self-stigma | -0.002 | 0.011 | -0.016 | 0.835 | -0.024 | 0.020 |
| Emotional transformation | 0.059 | 0.042 | 0.151 | 0.162 | -0.024 | 0.143 |
| Practice for change | 0.044 | 0.032 | 0.117 | 0.167 | -0.019 | 0.108 |
| Changes in the social environment | 0.091 | 0.036 | 0.290 | 0.014 | 0.019 | 0.162 |

Model statistics: *Adjusted $R^2$* = 0.232, $F_{(4, 159)}$ = 13.33, $p < 0.05$

| No telehealth use | b | S.E. | B | p | LBCI | UBCI |
|---|---|---|---|---|---|---|
| **Initiation** | - | - | - | - | - | - |
| In-person treatment | 0.855 | 0.257 | 0.269 | 0.001 | 0.347 | 1.363 |
| Age | 0.005 | 0.009 | 0.046 | 0.579 | -0.13 | 0.023 |
| Participatory dialogue: advantages – disadvantages | 0.072 | 0.016 | 0.408 | < 0.001 | 0.040 | 0.103 |
| Behavioral confidence | 0.045 | 0.021 | 0.236 | 0.030 | 0.004 | 0.086 |
| Changes in the physical environment | -0.042 | 0.029 | -0.137 | 0.160 | -0.100 | 0.017 |

Model Statistics: *Adjusted $R^2$* = 0.271, $F_{(5, 114)}$ = 9.86, $p < 0.05$

| Sustenance | | | | | | |
|---|---|---|---|---|---|---|
| **Sustenance** | - | - | - | - | - | - |
| In-person treatment | 0.686 | 0.264 | 0.224 | 0.010 | 0.164 | 1.208 |
| Race | 0.047 | 0.187 | 0.022 | 0.802 | -0.324 | 0.418 |
| Employment | -0.218 | 0.168 | -0.111 | 0.198 | -0.552 | 0.115 |
| Living arrangement | -0.409 | 0.175 | -0.197 | 0.021 | -0.755 | -0.62 |
| Emotional transformation | 0.073 | 0.048 | 0.227 | 0.131 | -0.22 | 0.167 |
| Practice for change | -0.009 | 0.035 | -0.029 | 0.793 | -0.80 | 0.061 |
| Changes in the social environment | 0.040 | 0.042 | 0.152 | 0.347 | -0.044 | 0.123 |

Model Statistics: *Adjusted $R^2$* = 0.189, $F_{(7, 123)}$ = 5.33, $p < 0.05$

*S.E. = standard error of the estimate; LBCI = lower bound of the 95% confidence interval; UBCI = upper bound of the 95% confidence interval.

## Results

Approximately 70% of participants had a perceived need for formal help due to psychological distress. Additionally, 38.7% reported suicidal ideation, 56.1% and 43.3% screened positive for anxiety and depression, respectively. Anxiety, depression, and suicidality severity were positively associated with previous 12-month telehealth help-seeking behavior. For the MTM, participants seeking psychological help perceived significantly higher advantages related to formal help-seeking, greater confidence to get help via telehealth, greater ability to emotionally direct themselves toward telehealth-based help, and increased perceived social support for telehealth use. Intent to seek psychological help via telehealth was significantly correlated with most study variables. The MTM constructs 'advantages/disadvantages' and 'behavioral confidence' significantly influenced intention to seek help via telehealth, after controlling for all variables of psychological distress among participants both with and without previous 12-month use of telehealth services. Of note, perceived self-stigma was significant in individuals who had prior telehealth use and higher in those who had also experienced in-person treatment. Finally, living status was a significant determinant of sustenance in those with in-person treatment experience, but no prior telehealth use.

## Discussion

The MTM effectively conceptualizes telehealth-based treatment-seeking among college students with psychological distress. Future behavioral interventions should, at a minimum, assess behavioral confidence and consider individuals' perceived advantages and disadvantages prior to implementation. Findings from this research will be useful in creating psycho-social and behavioral strategies for programs targeted at increasing telehealth-based psychological help-seeking in college student populations. Self-stigma is also a significant determinant of tele-mental health treatment seeking behavior that requires further research. Future MTM studies should use a prospective study design to effectively measure construct predictability for actual behavior versus mere intent.

## Key References

1. Kim, R., Stephens, P., Nahar, V., & Sharma, M. (2018). Influencing health behavior change related to musculoskeletal conditions – The need to expand the evidence base and the case for multitheory model. *American Journal of Physical Medicine and Rehabilitation, 97*(12), 933-934. Doi: 10.1097/PHM.0000000000000968
2. Nahar, V., Sharma, M., Catalano, H., Ickes, M., Johnson, P., & Ford, A. (2016). Testing multi-theory model (MTM) in predicting initiation and sustenance of physical activity behavior among college students. *Health Promotion Perspectives, 6*(2), 58-65. doi: 10.15171/hpp.2016.11
3. Panahi, R., Pishvaei, M., & Ghaderi, N. (2018). Multi-theory model of behavior change: An appropriate model for creating health behaviors. *Journal of Research and Health, 8*(6), 483-484. Doi: 10.29252/jrh.8.6.483
4. Sharma, M. (2015). Multi-theory model (MTM) for health behavior change. *Web MedCentral: Behavior, 6*(9). http://www.webmedcentral.co.uk/article_view/4982
5. Sharma, M., Khubchandani, J., & Nahar, V. (2017a). Applying a new theory to smoking cessation: Case of multi-theory model (MTM) for health behavior change. *Health Promotion Perspectives, 7*(2), 102-105. doi: 10.15171/hpp.2017.18
6. Sharma, M. & Nahar, V. (2017). New approach for promoting HPV vaccination in college men based on multi-theory model (MTM) of health behavior change. *Journal of Preventive Medicine and Hygiene, 58*(3), E203-E210