

# BEYOND DIGITAL LONELINESS: EMOTION REGULATION, BEDTIME PROCRASTINATION, AND WELL-BEING AMONG MID-LIFE WORKING WOMEN

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## ABSTRACT

The present study examined the mediating roles of cognitive re-appraisal and expressive suppression in the relationships between digital loneliness, bedtime procrastination and psychological well-being among mid-life working women. A cross-sectional design was used in this research study. The sample consisted of 300 midlife working women selected through the purposive sampling technique. The data was collected by using standardized questionnaires such as UCLA Loneliness Scale, Bedtime Procrastination Scale, Emotion Regulation Questionnaire and WHO-5 Wellbeing Index, measuring our study variables. The mediation analysis was conducted using SPSS. Our results indicated partial significant relationships among the study variables. The analysis showed that expressive suppression partially mediated the relationship between digital loneliness and wellbeing, whereas cognitive re-appraisal was non-significant in our sample. Also, significant group differences were observed across work-life balance levels.

## I. INTRODUCTION

Over time, digital technologies are becoming ingrained into our lives on a daily basis. The use of online platforms means that people can communicate, work and stay connected no matter the distance between them. According to a global report on the total number of people using the Internet worldwide, around 5.5 billion people are using the Internet with over 5.2 billion of those people using actively using social media (Statista, 2025). This demonstrates just how much digital communications and messaging have now become an ordinary part of daily life.

### Digital Loneliness

It has been observed that many human beings remain lonely while these people maintain a presence on the internet every hour, even though this connectivity has increased across the globe. Digital loneliness is described as a unique state by researchers (Szawarnoga et al., 2025), and digital loneliness indicates a personal sense of emotional separation even when online interaction occurs frequently. Although digital communication supports keeping contact with other persons, digital communication fails to provide the deep feeling and significant exchange that human beings require for mental health because the interaction stays shallow.

### Bedtime Procrastination and Digital Technology

Modern digital living today may also influence the sleep behaviour of a person. One of these behaviours is the growing interest of attention to the bedtime procrastination. Bedtime procrastination refers to the act of delaying

your sleep time for no external reason (Kroese et al. 2014). Many people use digital devices at night after a long day of routine so they can relax, communicate or do something for entertainment rather than going to bed. Though such behaviours can give you a short-term relief and enjoyment, yet they disrupt your sleeping patterns and can affect your psychological functioning negatively.

### **Emotion Regulation and Psychological Distress**

One of the other things influencing these connections is emotion regulation; that is, emotional regulation is how people handle their emotions. People with poor emotional regulation are likely to cope in a way that is not healthy for themselves by using excessive digital technology or having their sleep delayed as a result of loneliness or emotional stress, which may cause emotional dysregulation also related to an increased experience of psychological distress and maladaptive behaviours (Korkmaz et al., 2025).

### **Midlife Working Women and Digital Stressors**

Midlife working women can face many challenges because they are trying to manage their job with other responsibilities such as caregiving and other social obligations such as their careers, family duties, and social pressures. Balancing all these responsibilities can put stress on their emotional health and as a result it will lead them to spend more time on technology for relaxation or socialisation. It has been observed that midlife working women are at risk of suffering from digital loneliness, developing sleep disruptions, and reduced well-being when these different pressures grow too large.

### **Loneliness and Emotion Regulation**

Expanding on this perspective, Korkmaz et al. (2025) highlights the association between loneliness and difficulties in emotional regulation. Loneliness is not merely a social deficit, but as a process that involves impaired emotional regulation. Impairments in emotional regulation have been linked to heightened vulnerability to anxiety, depressive symptoms and psychological distress. Within digital contexts, this connection becomes particularly relevant. Digital loneliness may involve persistent feelings of sadness, perceived social exclusion and difficulty processing emotions that arise from online interactions. Thus, loneliness in digital spaces is not solely a consequence of limited interaction but may also reflect challenges in regulating emotional responses to virtual social experiences.

### **Cognitive Re-appraisal and Expressive Suppression**

Two major emotion regulation strategies often studied are cognitive reappraisal and expressive suppression. Cognitive reappraisal means changing the way a person interprets a situation to change the emotional response. For example, seeing a setback as a chance to grow may reduce negative feelings. In contrast, expressive suppression means holding back outward emotional expressions after the emotion has already been felt. Research shows that cognitive reappraisal is linked with better psychological outcomes, while regular expressive suppression is linked with higher stress and lower well-being.

### **Gross' Process Model of Emotion Regulation**

The most well-known theory in this area is Gross' Process Model of Emotion Regulation. According to this model, emotion regulation can happen at different stages of the emotional process. Gross identified five key points where regulation strategies may occur: (1) situation selection, where a person chooses to approach or avoid situations likely to trigger emotion; (2) situation modification, where parts of the environment are changed to reduce emotional impact; (3) attentional deployment, which involves shifting focus during an emotional experience; (4) cognitive change, where the meaning of a situation is reinterpreted; and (5) response modulation, which happens after the emotion develops and includes efforts such as suppression. Earlier strategies are usually more helpful, while later strategies such as suppression are often less effective.

### **Bedtime Procrastination as a Self-Regulation Failure**

Bedtime procrastination represents a lapse in self-regulation, where individuals postpone going to bed despite intending to sleep (Kroese et al., 2014). Emotional distress, such as that arising from digital loneliness, can deplete self-regulatory resources, and result in the inability to regulate impulses and discontinue digital activity. In cases where the control of emotions fails, individuals can develop avoidant coping strategies, such as excessive use of

digital devices at night, which results in disturbed sleep habits and poor well-being. Accordingly, Self-Regulation Theory offers an explanation of behaviours about the transformation of emotional processes into bedtime procrastination and lowered well-being.

### Digital Communication and Emotional Isolation

Digital communication has become a necessity of the present-day world. Although online communication enables one to stay in touch with others, they may not necessarily be able to interact with the people on an emotional level. Consequently, individuals can become digitally lonely, which is the sense of emotional isolation even when communicating digitally in many cases. It has been reported that loneliness has a significant association with psychological distress, emotional difficulties and lower levels of well-being (Gubler et al., 2021; Korkmaz et al., 2025).

### Emotional Dysregulation and Sleep Behaviour

The relationship between these processes of emotions may significantly influence how we define these relationships. Emotion regulation can be termed as the ability to control and adjust our emotions depending on a circumstance. (Gross, 1998). When people struggle to control their emotional reactions, they can turn to maladaptive coping in order to overcome the distressing feelings by overuse of digital technology or delaying sleep onset. Previous researches have also found that emotional dysregulation is associated with loneliness, high stress levels and low sleeping hygiene practices (Korkmaz et al., 2025). This research aims to fill an important gap in understanding the interaction between areas within a framework that focuses on midlife working women. The findings may contribute to a better understanding about the effects of digital technology on their emotional well-being and may help in developing better interventions for positive emotion-focused coping skills and establishing better sleep habits. The objective of the current study is given below:

- i. To determine whether emotion regulation mediates the relationship between digital loneliness, bed-time procrastination and well-being.
- ii. To explore group differences in digital loneliness, bedtime procrastination and well-being across primary caregiving responsibilities, work-life balance, evening emotional state and daily screen-time (non-work use).

## II. METHOD

### Participants

The participants of this study were mid-life working women aged 40-55, employed in various sectors such as education, healthcare, administration, and private organizations. Purposive sampling technique was used to select only those participants who meet the inclusion criteria. Inclusion criteria include women who are currently employed full-time or part-time for at least 1 year, fall within the age bracket of 40–55 years, use digital devices regularly, and social media platforms before sleep, and consent to participate in the study. Exclusion criteria include women who are younger than 40 or older than 55 years, are not currently employed, don't use digital devices daily, either don't use social media platforms or not before sleep, work permanent night shifts that significantly disrupt sleep cycles, have a diagnosed severe psychiatric disorder that substantially impairs daily functioning, or provide incomplete responses.

### Measures

**[I]** The UCLA Loneliness Scale (Version 3) was originally developed by Russell, Peplau and Ferguson in 1978, and Version 3 was later revised by Russell in 1996 to improve clarity and reliability. It consists of 20 items; each item is rated on a 4-point Likert scale from Never (1) to Often (4). Some items are reverse-coded. After scoring, all item scores are summed to give a total score ranging roughly from 20 to 80. Higher scores predict greater feelings of loneliness and social isolation. On the other hand, lower scores suggest a stronger sense of social connection. This scale has excellent psychometric properties, with internal consistency typically around  $\alpha = .89-.94$  and strong evidence of construct and convergent validity, suggesting it measures loneliness accurately and relates well to similar constructs like social isolation. It is considered a reliable instrument for assessing loneliness in adults due to its reliability, clarity and long history of use. **[II]** The Emotion Regulation Questionnaire (ERQ) was developed by

James Gross and Oliver John in 2003. It aims to measure two main emotion regulation strategies: cognitive reappraisal and expressive suppression. It contains 10 items which are scored on a 7-point Likert scale ranging from Strongly disagree (1) to Strongly agree (7). The scale produces two separate scores:

- i. Reappraisal (6 items) – higher scores mean the person frequently reinterprets situations to manage emotions.
- ii. Suppression (4 items) – higher scores mean the person tends to hide or hold back emotional expressions.

The ERQ shows good reliability, with Cronbach's alpha usually around .79–.90. It is widely used in psychological research to access emotion regulation and is considered a strong and psychometrically sound tool. [III] The Bedtime Procrastination Scale (BPS) was developed by Kroese, De Ridder, Evers and Adriaanse in 2014. It is a 9 item self-report questionnaire used to assess the tendency to delay going to bed without any external reason. The items are usually rated on a 5-point Likert scale ranging from Never (1) to Always (5). Some items are reverse-scored. After reverse scoring the items, sum of all 9 items is taken. Higher scores predict frequent bedtime procrastination. On the other hand, lower scores suggest better sleep-related self-regulation. Psychometric evaluations show good reliability (Cronbach's  $\alpha \approx .84$ ) and solid validity, demonstrating that the BPS consistently measures bedtime delay and relates well to sleep problems and self-control. [IV] The WHO-5 Well-being Index was created by the World Health Organization in 1998 as a brief measure of emotional wellbeing and quality of life. It contains 5 positively worded items which are rated on a 6-point scale ranging from 0 (At no time) to 5 (All of the time). The raw score (0–25) is usually multiplied by 4 to produce a final score between 0 and 100. Higher scores show better mood and overall wellbeing. A score below 50 is often considered as a predictor of poor wellbeing. The WHO-5 has strong reliability ( $\alpha$  around .82–.88) and excellent validity across many cultures, especially in screening for depression and low wellbeing. It is widely regarded as a robust and reliable screening tool based on its simplicity and accuracy.

### Procedure

The participants of this study were mid life working women aged 40–55 years. Participants were recruited using purposive sampling, which allows the researcher to select individuals who meet specific inclusion criteria. Recruitment took place through workplaces, social media platforms, and professional networks to reach a diverse group of participants. Participants were provided with detailed information about the study and were included only after providing informed consent, ensuring voluntary participation and adherence to ethical guidelines. For data collection, standardized self-report instruments were administered to assess the key variables. These include 4 psychological scales. The UCLA Loneliness Scale was used to measure subjective feelings of loneliness and social isolation. The Emotion Regulation Questionnaire (ERQ) was used to assess strategies of cognitive reappraisal and expressive suppression. The Bedtime Procrastination Scale (BPS) was used to evaluate habitual delays in going to bed, and the WHO-5 Wellbeing Index was used to measure overall psychological wellbeing. The questionnaires were administered either in person or online via secure Google forms. Clear instructions were provided to ensure accurate and consistent responses. After data collection, responses were coded and entered into SPSS for statistical analysis.

### III. RESULTS

**Table I: Frequency and Percentage Distribution of Participants' Demographic and Lifestyle Characteristics (N=300)**

| Demographics                          | Categories                     | <i>f</i> | %    |
|---------------------------------------|--------------------------------|----------|------|
| Age                                   | 40-44                          | 123      | 41   |
|                                       | 44-49                          | 125      | 41.7 |
|                                       | 50-55                          | 52       | 17.3 |
| Marital status                        | Single                         | 14       | 4.7  |
|                                       | Married                        | 246      | 82   |
|                                       | Divorced                       | 26       | 8.7  |
|                                       | Widowed                        | 14       | 4.7  |
| No. of children                       | No children                    | 18       | 6    |
|                                       | 1 child                        | 54       | 18   |
|                                       | 2 children                     | 87       | 29   |
|                                       | 3 or more children             | 141      | 47   |
| Daily screen time                     | Less than 2 hours              | 47       | 15.7 |
|                                       | 2-4 hours                      | 101      | 33.7 |
|                                       | 5-7 hours                      | 99       | 33   |
|                                       | More than 7 hours              | 53       | 17.7 |
| Bedtime routine                       | Fixed routine                  | 40       | 13.3 |
|                                       | Mostly fixed routine           | 106      | 35.3 |
|                                       | Irregular routine              | 99       | 33   |
|                                       | No routine                     | 45       | 18.3 |
| Worklife balance                      | Good                           | 84       | 28   |
|                                       | Moderate                       | 151      | 50.3 |
|                                       | Poor                           | 65       | 21.7 |
| Primary device used at night          | Smartphone                     | 246      | 82   |
|                                       | Laptop                         | 18       | 6    |
|                                       | Tablet                         | 6        | 2    |
|                                       | Multiple devices               | 30       | 10   |
|                                       | No caregiving responsibilities | 98       | 32.7 |
| Primary caregiving responsibilities   | Childcare                      | 87       | 29   |
|                                       | Eldercare                      | 43       | 14.3 |
|                                       | Both childcare & eldercare     | 72       | 24   |
|                                       | Calm/relaxed                   | 104      | 34.7 |
| Evening emotional state               | Stressed                       | 90       | 30   |
|                                       | Emotionally drained            | 109      | 35.3 |
|                                       | WhatsApp                       | 96       | 32   |
| Social media platform frequently used | Instagram                      | 151      | 50.3 |
|                                       | Snapchat                       | 9        | 3    |
|                                       | Tiktok                         | 44       | 14.7 |
|                                       | Education sector               | 71       | 23.7 |
| Profession                            | Healthcare sector              | 62       | 20.7 |
|                                       | Corporate sector               | 80       | 26.7 |
|                                       | Business/ Self-employed        | 38       | 12.7 |
|                                       | Government sector              | 49       | 16.3 |

**Table II: Descriptive Statistics and Reliability Coefficients of Study Variables (N = 300)**

| Scales/Subscales                                       | <i>M</i> | <i>SD</i> | $\alpha$ | Range |
|--------------------------------------------------------|----------|-----------|----------|-------|
| University of California, Los Angeles Loneliness Scale | 2.83     | .37       | .76      | 46-67 |
| Emotional Regulation Questionnaire                     | 4.44     | .96       | .80      | 20-70 |
| Cognitive Reappraisal                                  | 27.07    | 7.56      | .80      | 6-42  |
| Expression Suppression                                 | 17.33    | 5.31      | .89      | 5-25  |
| Bedtime Procrastination Scale                          | 3.07     | .20       | .75      | 24-32 |
| WHO-5 Wellbeing Index                                  | 2.34     | .99       | .83      | 0-23  |

Descriptive statistics for all study variables are presented in Table 2. Overall, participants reported moderately high digital loneliness with moderate levels of bed-time procrastination, while overall well-being was comparatively low. The participants had moderate emotional coping abilities.

**Table III: Mediation Analysis via Cognitive Reappraisal and Expression Suppression (N=300)**

| Effect Type               | Path                                                                  | <i>Effect</i> | <i>SE</i> | <i>t</i> | <i>p</i> | <i>LLCI</i> | <i>ULCI</i> |
|---------------------------|-----------------------------------------------------------------------|---------------|-----------|----------|----------|-------------|-------------|
| Direct Effect (CRF Model) | Digital Loneliness → Bedtime Procrastination                          | .041          | .013      | 3.10     | .002     | -           | -           |
| Indirect Effect (CRF)     | Digital Loneliness → Cognitive Reappraisal → Bedtime Procrastination  | -.001         | -         | -        | -        | -           | .011        |
| Direct Effect (ESF Model) | Digital Loneliness → Bedtime Procrastination                          | .032          | .014      | 2.30     | .022     | -           | -           |
| Indirect Effect (ESF)     | Digital Loneliness → Expressive Suppression → Bedtime Procrastination | .008          | -         | -        | -        | .001        | .016        |

*Note.* LLCI = lower limit confidence interval, ULCI = upper limit confidence interval, SE = standard error, CRF = Cognitive Reappraisal, ESF = Expressive Suppression.

Mediation analysis was conducted to examine whether cognitive reappraisal facet and expression suppression facet mediates the relationship between digital loneliness and bedtime procrastination. The results revealed that cognitive re-appraisal did not significantly mediate the relationship between digital loneliness and bedtime procrastination, as the indirect effect was not significant and the confidence interval included zero. In contrast, expressive suppression significantly mediated this relationship. Another mediation analysis was conducted to examine whether cognitive re-appraisal facet and expression suppression facet mediates the relationship between digital loneliness and well-being. Results are presented next.

**Table IV: Mediation Analysis via Cognitive Reappraisal and Expression Suppression (N=300)**

| Effect Type           | Path                                                     | <i>Effect</i> | <i>SE</i> | <i>t</i> | <i>p</i> | <i>LLCI</i> | <i>ULCI</i> |
|-----------------------|----------------------------------------------------------|---------------|-----------|----------|----------|-------------|-------------|
| Total Effect          | Digital Loneliness → Well-being                          | -.70          | .14       | 4.91     | <.001    | -.98        | -.42        |
| Indirect Effect (CRF) | Digital Loneliness → Cognitive Reappraisal → Well-being  | .02           | .07       | -        | -        | -.11        | .16         |
| Indirect Effect (ESF) | Digital Loneliness → Expressive Suppression → Well-being | -.10          | .05       | -        | -        | -.20        | -.17        |
| Direct Effect (CRF)   | Digital Loneliness → Well-being                          | -.70          | .14       | 4.91     | <.001    | -.98        | -.42        |
| Direct Effect (ESF)   | Digital Loneliness → Well-being                          | -.58          | .15       | 3.87     | <.001    | -.88        | -.29        |

*Note.* LLCI = lower limit confidence interval, ULCI = upper limit confidence interval, SE = standard error, CRF = Cognitive Reappraisal, ESF = Expressive Suppression.

The results showed that digital loneliness had a significant negative direct effect on wellbeing. Cognitive reappraisal did not mediate this relationship, as the indirect effect was non-significant and the confidence interval included zero. On contrary, expressive suppression showed a significant indirect effect, indicating partial mediation as the direct effect remained significant.

**Table V: ANOVA Results for Differences across Primary Care giving Responsibilities (N=300)**

| Variable                | No caregiving responsibilities<br>(n=98) |      | Childcare<br>(n=87) |      | Eldercare<br>(n=43) |      | Both childcare & eldercare<br>(n=72) |      | F     |
|-------------------------|------------------------------------------|------|---------------------|------|---------------------|------|--------------------------------------|------|-------|
|                         | M                                        | SD   | M                   | SD   | M                   | SD   | M                                    | SD   |       |
| Digital Loneliness      | 55.40                                    | 8.95 | 56.89               | 6.44 | 56.42               | 6.01 | 58.0                                 | 6.93 | 1.79  |
| Bedtime Procrastination | 27.45                                    | 1.87 | 27.57               | 1.80 | 27.70               | 1.50 | 28.07                                | 1.83 | 1.76  |
| Wellbeing               | 11.66                                    | 5.34 | 12.46               | 4.45 | 12.65               | 5.25 | 10.36                                | 4.57 | 3.02* |

\* $p < .05$

A series of one-way ANOVAs were conducted to examine group differences across primary caregiving responsibilities, work-life balance, evening emotional state, and daily non-work screen time. Significant differences were observed across variables. The one-way ANOVA indicated non-significant differences in digital loneliness ( $F = 1.79, p > .05$ ) and bedtime procrastination ( $F = 1.76, p > .05$ ) across primary care giving responsibilities, and well-being ( $F = 3.02, p = .030$ ) showed significant differences.

**Table VI: ANOVA Results for Differences Across Work-life Balance (N=300)**

| Variable                | Good<br>(n=84) |      | Moderate<br>(n=151) |      | Poor<br>(n=65) |      | F     | p    |
|-------------------------|----------------|------|---------------------|------|----------------|------|-------|------|
|                         | M              | SD   | M                   | SD   | M              | SD   |       |      |
| Digital Loneliness      | 52.85          | 8.34 | 56.91               | 6.08 | 60.75          | 6.76 | 24.17 | .000 |
| Bedtime Procrastination | 27.45          | 2.08 | 27.50               | 1.56 | 28.35          | 1.78 | 6.19  | .002 |
| Wellbeing               | 14.60          | 5.16 | 11.39               | 4.51 | 8.78           | 3.52 | 31.1  | .000 |

The one-way ANOVA revealed significant differences across work-life balance groups for digital loneliness,  $F = 24.17, p = .000$ , bedtime procrastination,  $F = 6.19, p = .002$ , and well-being,  $F = 31.10, p = .000$

**Table VII: ANOVA Results for Differences Across Evening Emotional State Groups (N=300)**

| Variable                | Calm<br>(n=104) |      | Stressed<br>(n=90) |      | Emotionally drained<br>(n=106) |      | F     | p    |
|-------------------------|-----------------|------|--------------------|------|--------------------------------|------|-------|------|
|                         | M               | SD   | M                  | SD   | M                              | SD   |       |      |
| Digital loneliness      | 53.40           | 8.02 | 58.48              | 6.18 | 58.16                          | 6.83 | 16.28 | .000 |
| Bedtime Procrastination | 27.34           | 1.91 | 27.57              | 1.50 | 28.08                          | 1.86 | 4.85  | .008 |
| Well-being              | 14.96           | 4.76 | 9.87               | 3.66 | 10.12                          | 4.51 | 43.83 | .000 |

Results of the one-way Anova indicated significant differences across evening emotional state groups in digital loneliness,  $F = 16.28, p < .001$ , bedtime procrastination,  $F = 4.85, p > .001$ , and wellbeing,  $F = 43.83, p < .001$ .

**Table VIII: ANOVA Results for Differences Across Daily Non-Work Screen Time (N=300)**

| Variable                | Less than 2 hours<br>(n=47) |      | 2-4 hours<br>(n=101) |      | 5-7 hours<br>(n=99) |       | More than 7 hours<br>(n=53) |      | F     |
|-------------------------|-----------------------------|------|----------------------|------|---------------------|-------|-----------------------------|------|-------|
|                         | M                           | SD   | M                    | SD   | M                   | SD    | M                           | SD   |       |
| Digital Loneliness      | 53.81                       | 9.03 | 57.67                | 5.60 | 57.07               | 7.732 | 56.19                       | 7.98 | 3.15* |
| Bedtime Procrastination | 27.49                       | 1.64 | 27.60                | 1.83 | 27.99               | 1.821 | 27.36                       | 1.81 | 1.78  |
| Well-being              | 13.70                       | 5.18 | 11.84                | 4.76 | 11.51               | 4.656 | 10.15                       | 5.18 | 4.52* |

Results of the one-way ANOVA indicated significant differences in digital loneliness,  $F = 3.15$ ,  $p < .05$ , and wellbeing,  $F = 4.52$ ,  $p < .05$ , across daily non-work screen time groups. However, no significant differences were found in bedtime procrastination,  $F = 1.78$ ,  $p > .05$ .

## IV.DISCUSSION

The results of mediation analysis indicated that cognitive re-appraisal did not significantly mediate the association between digital loneliness and bedtime procrastination. Although cognitive re-appraisal is widely recognized as an adaptive emotion regulation strategy that promotes psychological adjustment and wellbeing (Gross & John, 2003; Gubler et al. 2020), its benefits may be more strongly reflected in emotional and cognitive domains rather than in behavioral outcomes such as maintaining intended sleep schedules. On the other hand, expressive suppression emerged as a significant mediator of this relationship. The Self-regulation Theory suggests that successful behavioral regulation is dependent upon the availability of such resources; therefore, individuals who habitually suppress their emotions may have fewer resources for regulating their behaviours. This depletion may increase susceptibility to bedtime procrastination, a behaviour that has consistently been linked with deficits in self-regulation (Korese et al., 2016). Collectively, these findings suggest that expressive suppression constitutes a more salient mechanism linking digital loneliness to bedtime procrastination than cognitive re-appraisal among midlife working women. The persistence of the direct effect indicates that digital loneliness has effects on wellbeing in numerous other ways than in emotion regulation. To begin with, cultural variables play an important role in explaining these differences. Females in collectivist cultures, in particular, have been socialized from early childhood to cultivate relationships with harmony, adapt and adjust to others and to suppress their own emotional distress. The mid-life working women usually face overload due to the need to balance professional duties with care giving and household tasks. This constant mental weight lowers the possibility for them to utilize cognitive reappraisal due to a high level of cognitive exhaustion, ultimately which limits the opportunity to use effortful emotion regulation strategies. The presence of partial mediation tells those other additional mediators (disrupted sleep, emotional fatigue, lack of social support, and increased social comparison) exists as well.

Furthermore, the results revealed non-significant differences in digital loneliness across care-giving groups. It shows that the subjective quality of social interaction and perceived emotional connection affect digital loneliness more than the objective role responsibilities. The noteworthy variation in wellbeing across care-giving groups further indicates that care-giving demands have a meaningful psychological impact. The increased responsibilities lead towards factors like emotional fatigue, reduced personal time, higher stress, all of which contributes in lowering overall wellbeing. Meanwhile, the results of work-life balance remained significant across all study variables including digital loneliness, bedtime procrastination, and wellbeing. Women reporting lack of work-life balance experienced increased digital loneliness. When women are continuously engaged in work and household responsibilities, they often lack time and emotional energy to engage in meaningful and emotionally fulfilling social interactions. Women with poor work-life balance reported higher levels of delaying sleep. Finally, wellbeing showed strong and significant differences, with women reporting better work-life balance experiencing higher levels of wellbeing. The findings showed that women who felt stressed or emotionally drained reported significantly greater digital loneliness, higher bedtime procrastination, and lower psychological wellbeing than those who felt calm and relaxed. The emotionally drained women recorded the greater levels of bedtime procrastination, while the calm and relaxed women reported the least. The results of wellbeing revealed a clear pattern, with women who reported feeling calm and relaxed in the evening demonstrating significantly higher

levels of wellbeing. Lastly, the digital loneliness and wellbeing were significantly linked with screen use, whereas bedtime procrastination did not vary significantly according to screen-time levels. Interestingly, the heaviest screen users were not the loneliest people; rather, it was the moderate users who were more likely to reduce their loneliness with the screen use. The most important finding of the study was the consistent decline in wellbeing as screen-time increased. Contrary to expectations, bedtime procrastination did not differ according to screen-use levels.

## V. CONCLUSION

Overall, the findings show that digital loneliness influences psychological wellbeing and bedtime procrastination among mid-life working women. Although emotion regulation may play a role, strategies such as cognitive reappraisal may not be equally effective across different cultures and life situations. In an increasingly digital world, online connection alone does not guarantee wellbeing; its emotional quality, meaning, and management is also important. Increased online interaction may not reduce loneliness when it lacks emotional meaning, while late-night digital use may serve as a way to cope with emotional discomfort or limited personal time. These findings have important implications for mental health professionals, who should address digital loneliness and bedtime procrastination as possible coping responses rather than viewing them solely as problems of poor time management. Interventions may incorporate emotion-regulation skills, digital-wellbeing practices, balanced technology use, and strategies that support work-life balance among mid-life working women. However, the findings should be interpreted considering several limitations. The study relied on self-report data collected through an online questionnaire, which may involve reporting bias. The use of purposive sampling and a sample consisting of urban mid-life working women from South Asian and Middle Eastern contexts also limits the generalizability of the findings. Additionally, factors such as work stress, marital satisfaction, physical health, sleep quality, and personality traits were not examined and may have influenced the results.

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