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Cognitive Biases In Security Decision-Making Among Working And Non-Working Women: A Qualitative Study

BITHI PAUL[1], DR. RESHMA KHATUN[2]

[1] Research Scholar,
[2] Assistant Professor,
Department of Education
Aliah University, Kolkata,
India

Abstract

Security decision-making in daily life is influenced not only by knowledge and situational factors but also by inherent cognitive biases. Women, especially in modern socio-economic contexts, face diverse security-related challenges in digital, financial, physical, and interpersonal domains, depending on whether they are employed or homemakers, face different environments that shape their risk perception and judgment. Cognitive biases shape security decision-making among working and non-working women, depending on their financial differences, risk perception levels, and behavioral patterns. This qualitative study explores how working and non-working women experience and interpret security threats through the lens of cognitive bias. Findings show differing patterns of familiarity bias, intuition-driven reasoning, digital overconfidence and under confidence, and media-driven availability heuristic. Implications highlight the need for tailored interventions.

Keywords: Cognitive bias, Security decision-making, Working, non-working women

I. Introduction

Cognitive biases are automatic mental shortcuts that simplify decision-making but often lead to systematic errors (Tversky & Kahneman, 1974). Security decision-making refers to the choices individuals make to protect themselves from potential harm in physical, digital, social, and financial contexts. Security-related decisions such as home safety, online privacy, travel-based risk assessment, or interpersonal threat judgment are particularly prone to these biases. While awareness, knowledge, and experience influence security choices, decisions are also shaped by cognitive biases systematic thinking errors that occur when individuals process information under uncertainty.

Women's security choices have been studied broadly, but differences between working and non-working women remain understudied despite their distinctive daily exposures, responsibilities, and mobility patterns. Women, particularly in India and similar socio-cultural environments, navigate multiple security concerns such as digital privacy, workplace safety, domestic safety, financial fraud, cybercrime, and mobility-related risks.

Working women often navigate the workplace, public transit, and digital systems while non-working women manage home environments and community interactions, their cognitive biases may manifest differently. This study investigates these differences in depth, using qualitative inquiry.

1.1 Problem Statement

Despite rising education and technological awareness, many women still fall prey to unsafe decisions due to unconscious biases. Employment status may influence exposure, confidence, and risk perception. There is limited research comparing security decision-making biases across working and non-working women.

II. Literature Review

2.1 Cognitive Biases in Security Contexts

Cognitive biases influence how individuals interpret threats and make protective decisions (Acquisti et al., 2015). In security contexts, the most relevant biases include:

Optimism Bias- Individuals believe negative events are less likely to happen to them (Sharot, 2011), reducing preventive behaviour.

Familiarity Bias- People trust familiar surroundings and individuals, leading to potentially dangerous assumptions (Slovic, 2000).

Overconfidence Bias- Users may overestimate their digital competencies or ability to detect threats (Moore & Clayton, 2007).

Availability Heuristic- Recent or vivid information such as news of crimes disproportionately shapes risk perception (Slovic, 1987).

2.2 Women and Security Decision-Making

Women typically report higher perceived vulnerability to physical dangers (Flynn et al., 1994). Yet studies show women may exhibit lower confidence in digital security tasks (Foster et al., 2015). These patterns indicate cognitive biases interact with social expectations and gender norms.

2.3 Working vs. Non-Working Women

Working women encounter diverse environments, time pressure, and higher digital exposure shaping their security decisions (Vroom & von Solms, 2004). Non-working women rely more on habitual routines and known networks, often depending on intuition or family guidance (Banerjee & Duflo, 2011). Yet comparative examination of these groups through the lens of cognitive bias remains limited, creating a gap addressed by this study.

III. Theoretical Framework

3.1 Dual-Process Theory

Security decisions often rely on fast, intuitive System 1 thinking rather than analytical System 2 thinking (Kahneman, 2011). Cognitive biases are products of System 1 dominance.

3.2 Risk Perception Theory

Risk perception is influenced by cultural factors, personal experience, and emotional responses (Slovic, 1987). Women's roles shape perceived vulnerability and response strategies.

IV. Methodology

4.1 Design

A qualitative phenomenological design captured lived experiences and internal decision-making processes.

4.2 Participants

24 women (12 working, 12 non-working) aged 22–55 from urban and semi-urban communities participated.

4.3 Data Collection

Semi-structured interviews lasting 30–45 minutes explored security decisions, digital practices, and perceived threats.

4.4 Data Analysis

Thematic analysis followed the steps outlined by Braun and Clarke (2006), leading to four major thematic patterns.

V. Findings

Theme 1: Familiarity Bias vs. Exposure Bias
Non-working women strongly trusted familiar environments and known individuals, often perceiving them as inherently safe even when incidents previously occurred (Slovic, 2000). Working women perceived public spaces as riskier due to greater exposure but unwittingly ignored risks at home due to routine familiarity.

Theme 2: Intuition-Driven Reasoning
Both groups relied heavily on intuition (Kahneman, 2011), but differently: Non-working women equated politeness, appearance, or local reputation with safety. Working women responded quickly to situational "red flags," especially during travel, late working hours, or online interactions.

Theme 3: Digital Overconfidence vs. Under confidence
Working women displayed overconfidence bias, believing they were digitally skilled but using weak or repeated passwords (Moore & Clayton, 2007). Non-working women demonstrated under confidence bias, delegating digital security to family members, increasing vulnerability to manipulation or phishing (Foster et al., 2015).

Theme 4: Availability Heuristic and Media Influence
Both groups were influenced by crime-related news (Slovic, 1987): Working women modified routines (e.g., avoiding late-night travel). Non-working women became more fearful but rarely implemented consistent safety changes.

VI. Discussion

The findings of the study reveal clear and consistent differences in how working and non-working women experience and respond to cognitive biases during security-related decision-making. Working women showed a greater awareness of risks, largely due to their daily exposure to digital platforms, workplace security protocols, and multitasking demands that require quick judgments. This constant engagement seems to enhance their ability to recognize biases such as confirmation bias, overconfidence bias, and availability bias. Because of this awareness, working women were more likely to cross-verify information, seek expert consultation, and rely on structured decision processes. In contrast, non-working women showed a stronger inclination toward emotional reasoning and availability bias, particularly in situations related to family safety and household digital usage. Limited exposure to formal security environments appears to increase reliance on personal experiences, intuition, and social influence. While this supports rapid decision-making, it also leaves room for cognitive distortions that may lead to overestimating risks (e.g., fear of rare events) or underestimating technical threats (e.g., online fraud or phishing).
A notable pattern emerging from the data is that both groups tend to trust familiar sources, such as family members or close friends, even when the information may be biased or incomplete. However, working women displayed a higher tendency to validate such information before acting, whereas non-working women often accepted it without question due to social proof and relational trust.
The results also highlight that multitasking pressure increases the likelihood of biased decisions across both groups. Working women, despite being more security-aware, reported that cognitive overload at work sometimes pushes them to make quick decisions, increasing susceptibility to heuristics. Non-working women experienced similar overload due to domestic responsibilities, but with fewer formal mechanisms to support analytical thinking.

6.1 Working Women

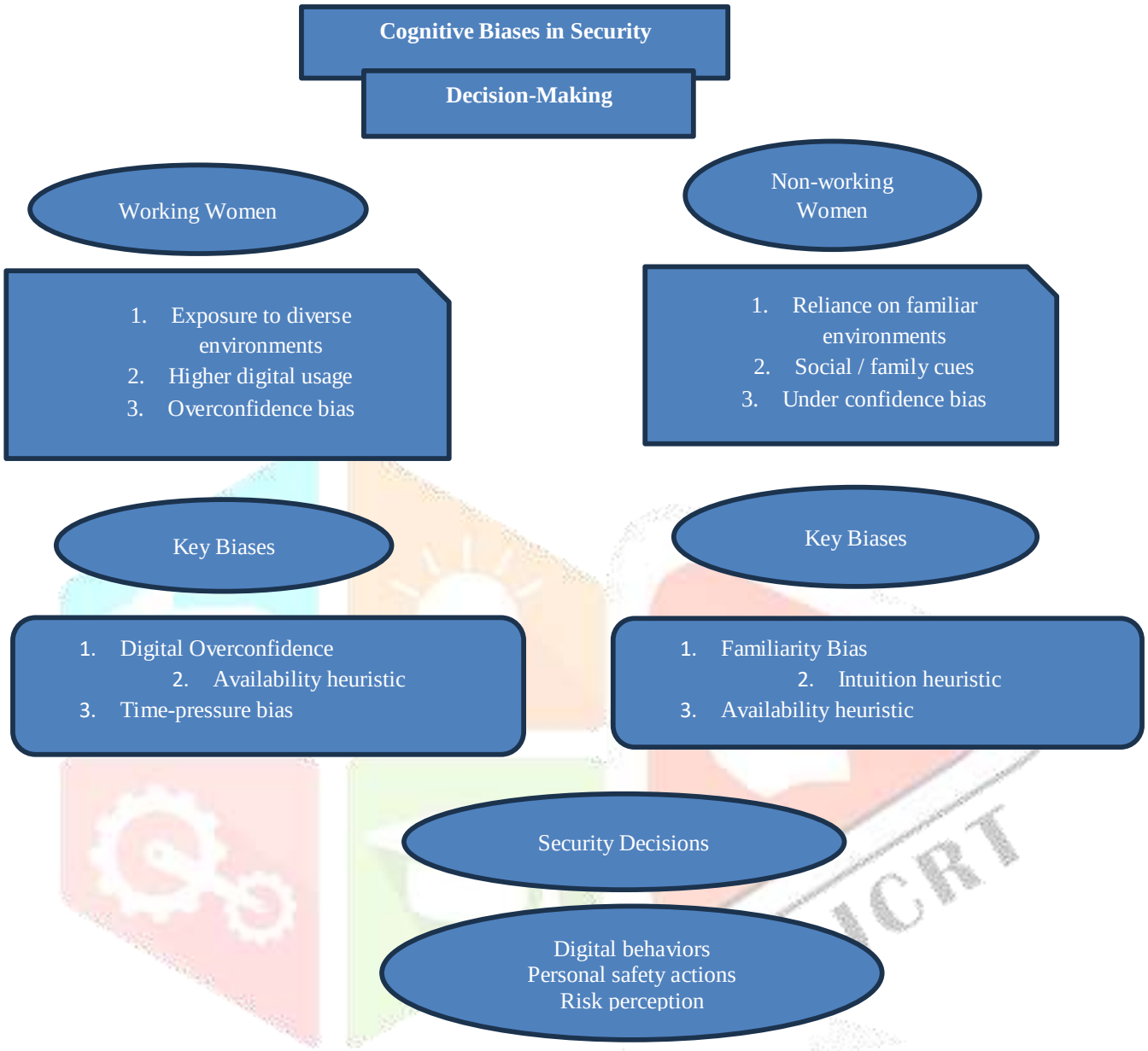
- More analytical but prone to digital overconfidence
- More responsive to situational cues
- Experience time-pressure bias in workplace settings

6.2 Non-Working Women

- High reliance on familiarity bias and social cues
- Digital under confidence increases susceptibility
- Emotional reasoning and cultural norms shape decisions

The findings align with Dual-Process Theory (Kahneman, 2011), emphasizing intuitive decision-making, and Risk Perception Theory (Slovic, 1987), which highlights emotional influences.

VII. Conceptual Framework



VIII. Conclusion

Occupational roles shape the cognitive patterns through which women assess threats and make security choices. Working women demonstrate greater exposure-based risk awareness but also digital overconfidence, while non-working women rely more on intuition and familiarity. Tailored security programs addressing these specific biases can enhance women's overall safety and digital resilience.

This study concludes that cognitive biases significantly affect the security decision-making of both working and non-working women, but the nature and intensity of these biases differ according to their daily environments and experiences. Working women demonstrate stronger analytical decision-making due to higher exposure to digital systems and structured protocols, while non-working women rely more on intuitive and socially influenced reasoning. Neither group is entirely free from bias, which highlights the universal nature of cognitive distortions in human judgment.

Ultimately, enhancing women's decision-making capacity requires not only technical awareness but also frameworks that help them identify and manage the cognitive shortcuts that interfere with accurate judgment. Strengthening these capacities will lead to more informed, confident, and secure choices benefiting not only the women themselves but also their families, workplaces, and communities.

IX. Recommendations

1. Develop Targeted Security Awareness Programs
2. Introduce Community-Based Digital Security Workshops
3. Promote Bias-Reduction Techniques
4. Strengthen Workplace Cybersecurity Culture
5. Improve Access to Reliable Information
6. Encourage Family-Level Digital Safety Discussions

X. Future Research Scope

1. Comparative Studies Across Age Groups
2. Longitudinal Studies on Bias Awareness Training
3. Experimental Studies on Specific Biases
4. Impact of Social Media on Cognitive Bias Formation
5. Role of Cultural Expectations and Gender Norms

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