

Asian Journal of
**HUMAN
SERVICES**

PRINTED 2024.1030 ISSN2188-059X

PUBLISHED BY ASIAN SOCIETY OF HUMAN SERVICES

OCTOBER 2024
VOL. **27**



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The word 'Human Services' is used when someone faces social challenges for 'help' or 'support' people.

'Human Services' is expanding rapidly its area such as fields of social welfare, medical, nursing, clinical psychology related mental care, health promotion for aging society, assist family for infant and child care, special supporting education corresponding to vocational education, education support sector corresponding to era of lifelong learning and fluidization of employment corresponding to the area of career development.

Human Services area, if its research methods are scientific, is internationally accepted and greater development is expected by collaborative research which is performed by multinational and multi-profession.

This journal aims to contribute to the progress and development of Asian Human Services.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

A Linguistic Analysis of an Inspirational Autobiographical Success Story of Racism

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ABSTRACT

Inspirational Autobiographical Success Stories of Racism (IASSR) refer to personal narratives that recount the experiences of individuals who have faced racism and discrimination but have managed to overcome these challenges and achieve success. Analyzing linguistic elements in these narratives can unveil the strategies used to navigate and overcome racial challenges, offering valuable insights into coping mechanisms and empowering narratives. The study aims to delve into verb choices, attitudes, and narrative processes within the story, seeking to unveil underlying structures, patterns, and characteristics. Accordingly, it is hypothesized that the IASSR follow a consistent structure of narration presented by Labov; positive attitudes predominate within IASSR narratives; action verbs are the most frequently utilized type of verb process in IASSR. Drawing upon the narrative analysis model by Labov and Waletzky (1997), this paper explores the overarching structure of the racism story "Hate is Virus" (2021) by Michelle K. Hanabusa. In addition to narrative analysis, this paper incorporates the appraisal theory developed by Martin and White (2005), which focuses on the linguistic choices used to express attitudes; furthermore, Halliday's transitivity theory (2004) is utilized to explore the linguistic representation by analyzing the transitivity patterns. The combination of a captivating, authentic narrative, a well-balanced structure, and nuanced attitudes towards combating racism creates a compelling and impactful storytelling experience. It engages readers emotionally, encourages critical thinking, and fosters a deeper understanding of the transformative power inherent in addressing and overcoming racism.

Keywords: Inspirational Success Stories, Labovian model, Appraisal Theory, Transitivity

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Received: 2024/01/25 ; *Revised:* 2024/04/08 ; *Accepted:* 2024/04/09 ; *Published:* 2024/10/30



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1. Literature Review

Storytelling, as an ancient and fundamental aspect of human communication, has been present since the earliest forms of human expression. It encompasses the conveyance of narratives or sequences of events through spoken, written, or visual means, playing a significant role in shaping human culture. Over the course of history, storytelling has taken various forms, including myths, legends, and folktales, serving as vessels for transmitting wisdom, knowledge, and cultural heritage across generations^{1,2}.

Stories, being one of the most ancient forms of literature, have played a crucial role in preserving the history and cultural heritage of societies. By closely examining the content and structure of stories, valuable insights can be gained, deepening our understanding of the diverse values and ethical principles that shape social interactions³.

1.1. Autobiographies

Autobiography, a rich subject for scholarly exploration, involves individuals sharing their unique life stories in various styles. Gibbs notes the genre's evolution, encompassing memoirs, testimonies, and historical narratives beyond public figures⁴. Altier et al emphasize the value of personal perspective over public significance⁵. Autobiographies serve as comprehensive accounts, detailing influential individuals, significant events, and personal experiences that shape one's identity. They become a communication tool for expressing identity, worldview, and decision-making, as Gibbs underscores⁴. Altier et al highlight the genre's role in offering insights into social perceptions⁵. Reveley adds that autobiographies provide a window into the author's subjectivity, allowing readers to grasp their personal perspective⁶. Bruner contributes the insight that autobiographies reveal how individuals construct culture and shape identity⁷. Autobiographies, by covering a significant portion of a person's life, offer a broad yet deep understanding of their thoughts and experiences, serving as invaluable resources for researchers⁸.

1.2. Success Stories

According to Carol S. Dweck's research in "Mindset: The New Psychology of Success," success is intricately linked to one's mindset-either fixed or growth⁹. In a fixed mindset, individuals believe their abilities are innate and unchangeable, often seeking validation through risk-free demonstrations of their skills. Failure in this mindset is perceived as a personal inadequacy, causing demotivation. Conversely, a growth mindset sees abilities as developable through effort and learning, welcoming challenges and viewing failure as a chance for growth. Those with a growth mindset tackle new challenges, persist in adversity, and achieve higher success levels. Dweck asserts that success stories arise when individuals with a growth mindset embrace challenges, learn from mistakes, and consistently strive for improvement⁹. Success, in this perspective, results from dedication, hard work, and a willingness to learn and adapt, with success stories characterized by individuals overcoming obstacles, maintaining positivity, and demonstrating resilience in pursuit of their goals^{10,11}.

1.3. Inspiration

Inspiration, as discussed by Hendrick, involves uncovering breakthroughs by deconstructing problems and tapping into an individual's potential. It leads to sustained abundance, love, and creativity¹². Harding highlights its role in capturing and harnessing ideas, emphasizing its significance¹³. Authors like Christensen et al. and Thrash et al. argue that inspiration is a motivational state crucial to the creative process^{14,15}.

Traditionally linked to prophets and leaders, inspiration now transcends boundaries, reaching all countries, generations, and communities. It has become a fundamental value, evaluated beyond mere motivation for performance, evolving amidst social, economic, and political instability¹⁶⁾. In the current world, inspiration holds potential for fostering shared purposes, engaging diverse communities, and driving social transformations^{17,18)}. Genuine inspiration instills independence, empowering individuals to be self-reliant and unique. In today's context, an inspired person is characterized by greater self-fulfillment, active participation, and self-assurance¹⁶⁾.

1.4. Previous Studies

The existing literature lacks studies similar to the current research topic, with notable contributions such as Debrah J. Martin's "Communicating Vision: A Linguistic Analysis of Leadership Speeches." Martin's work addresses the linguistic aspects of leaders conveying visions, utilizing theories and methodologies to guide effective expression¹⁹⁾. In contrast, the present study examines linguistic features in success story of racism, employing a mixed qualitative and quantitative approach. Another extension of this research focuses on linguistically analyzing autobiographical success story of racism, particularly those addressing racism, to understand effective communication of experiences and inspire engagement on the topic. Additionally, Sujana Suvin, et al's study explores racism within Toni Morrison's novels, employing distinct analytical approaches²⁰⁾. While the current study focus is on novels, the current research contributes to understanding racism through linguistic analysis of autobiographies, providing a comprehensive exploration of linguistic analysis in diverse contexts and enriching the existing literature.

2. Methodology

This section elucidates several aspects pertaining to the methodology employed in the study, including the research design, data selection, techniques of analysis, adopted model which are the narrative analysis model by William Labov and Joshua Waletzky in 1997, appraisal theory by Martin, White in 1990s, and Halliday's Transitivity 2004. Also, other relevant considerations will be dealt with in this section²¹⁻²³⁾.

2.1. Research Design

The research design for this study adopts a mixed qualitative and quantitative approach to analyze the story. The qualitative component aims to comprehend the meaning and experiences conveyed through linguistic features and strategies, providing detailed insights into individual journeys and capturing the complexity of human experiences. In contrast, the quantitative aspect utilizes statistical tools to identify patterns and trends in the language used to portray success. This combined approach enhances the rigor and objectivity of the analysis, offering a comprehensive understanding of how success stories are linguistically constructed.

2.2. Data Selection

The paper focuses on success story of racism, selecting the narratives from YouTube. The story entitled, "*Hate is Virus*" (2021) by Michelle K. Hanabusa, explores the author's journey to embrace her Japanese-American identity and speak up against hate (<https://youtu.be/BabbDVmjWjM?si=Q1iuN51DX4a N1BhV>)²⁴⁾. This narrative is selected to provide deep

perspective on racism, offering valuable insights into personal struggles, growth, and empowerment, contributing to a comprehensive exploration of the subject matter.

2.3. Procedures of Analysis

The procedures of analysis are as follows:

1. Selecting the racism story from the source and carefully read it.
2. Analyzing the story using the Labovian model, which consists of six components: abstract, orientation, complicating action, evaluation, resolution, and coda.
3. Following the Labovian structure, the Appraisal Theory and transitivity model are applied.
4. Conducting a quantitative analysis to investigate the interconnections among the Labovian model, the Appraisal Theory, and the Transitivity model.
5. Discussing the overall results of the analysis, including the themes, attitudes, and verb usage frequency observed within the story in question.

2.4. Adopted Models

2.4.1. Narrative Analysis Model (Labov and Waletzky)

The Narrative Analysis Model, developed by William Labov and Joshua Waletzky in 1997, is a framework for analyzing and comprehending narratives. This model delves into the structure, content, and social-cultural influences shaping narratives. Labov's perspective outlines six key components shaping the narrative's structure and meaning. The Abstract provides a concise theme, the Orientation establishes contextual details, and the Complicating action drives the narrative with events or conflicts. The Evaluation prompts reflection on significance, while the Result or resolution reveals outcomes. Finally, the Coda concludes the narrative, offering a conclusive statement. Labov's framework, encompassing these elements, creates a coherent and engaging storytelling experience, providing a comprehensive structure for narrative analysis²¹⁾.

2.4.2. Appraisal Theory (Martin and White)

Appraisal Theory, developed by Martin and White in the 1990s, is a theoretical framework that derives from Halliday's Systemic-Functional Grammar and focuses on the interpersonal function of language. It comprises three subsystems: Attitude system, Engagement system, and Graduation system. The Attitude system, which will be the main focus of this discussion, is a concentrated expression of the speaker's emotions and involves the real-time assessment of emotions, judgment of behavior, and evaluation of aesthetic phenomena. It includes resources for expressing affect, making judgments, and showing appreciation. This system evaluates emotions, behavior, and the value of things, identifying both positive and negative evaluations based on the participant's behavior²²⁾.

2.4.3. Transitivity (Halliday)

Halliday's Transitivity is a linguistic model that focuses on the analysis of how participants and processes are represented in language. It is part of Systemic Functional Linguistics, developed by Michael Halliday. Halliday states that "transitivity translates the world of experience into a manageable set of process types" (p. 107)²³⁾.

Transitivity examines how clauses are structured and how participants are assigned roles (such as actor or goal) in the representation of actions and events. Halliday identifies six distinct process types within the English transitivity system: mental, material, behavioral, relational, verbal, and existential. Initially, he focuses on the primary process types of material, mental, and relational. However, he later expands his analysis to include the remaining three process types, which exist at the periphery of the initial three categories. This comprehensive framework allows for a more nuanced understanding of the various ways in which actions, states, and relationships are expressed in the English language²³).

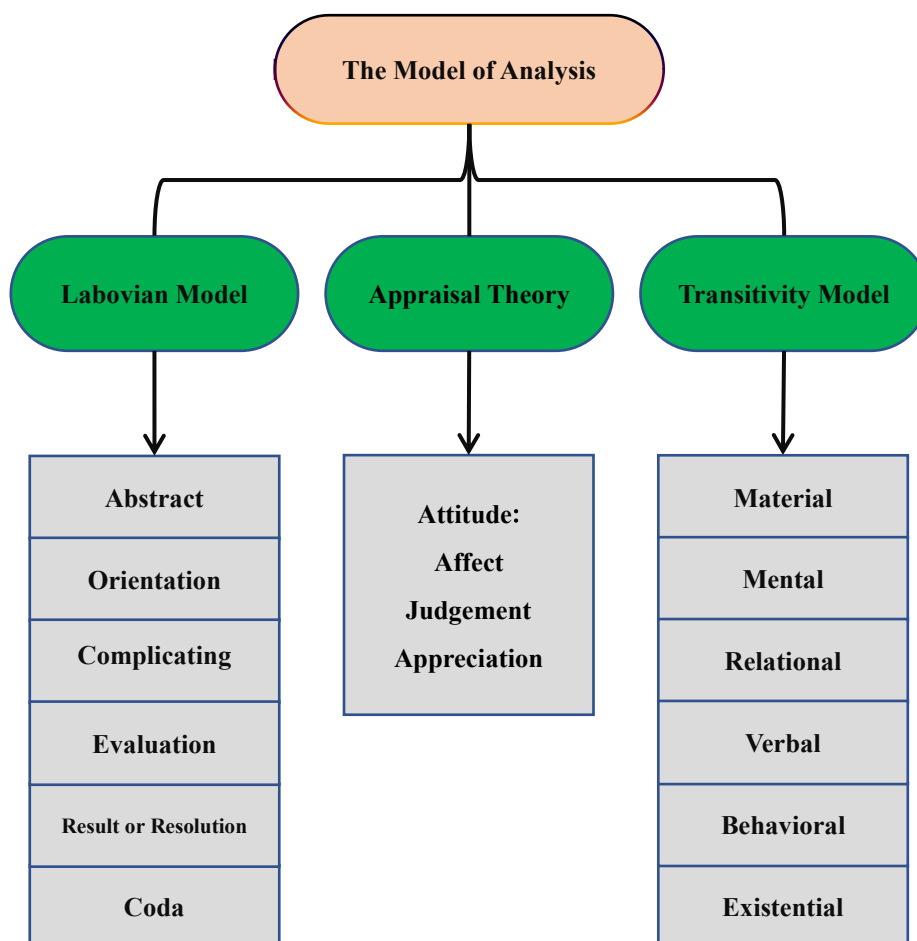


Figure 1. The Representation of the Model of Analysis

The chosen models are selected for their complementary strengths in analyzing different aspects of IASSR. Labov and Waletzky's narrative analysis provides a structured framework for examining the storytelling elements, such as orientation, complication, and resolution. This model helps in understanding the overall narrative structure and the linguistic devices employed to convey personal experiences. Martin and White's appraisal theory focuses on evaluating the emotional and evaluative language within narratives. By incorporating this model, the study gains insights into the affective dimensions of the stories, identifying how individuals express their emotions and judgments throughout their accounts. Applying Halliday's Transitivity model entails focusing on verb choices and processes (material, mental, relational...) in Hanabusa's narrative. This analysis involves identifying and examining the verbs she uses to convey experiences, actions, and reactions

related to racism. By scrutinizing these linguistic choices, the model helps uncover the dynamic aspects of her journey, offering insights into agency, interactions, and the transformative nature of her autobiographical success story.

By integrating these models, the study achieves a comprehensive analysis, combining narrative structure, emotional expression, and linguistic agency. The synergy of these models allows for a nuanced understanding of the linguistic strategies employed in IASSR.

2.5. Significance

A linguistic analysis of an IASSR can provide valuable insights into the narrative structure, linguistic choices, and rhetorical strategies employed by the narrator. The potential significances of such an analysis that can be detected and reflected in the following points:

- a. Understanding the Narrative Structure where one can identify the key elements of the narrative structure, such as the introduction, complicating action, climax, resolution, and coda. This analysis helps uncover how the author frames and organizes their story to convey their experiences with racism and their journey towards success. It sheds light on the storytelling techniques used to engage and inspire the audience.
- b. Inspiring and Empowering Others: Linguistic features play a crucial role in inspiring and empowering the audience. By understanding the linguistic strategies employed in the success story, one can examine how the author aims to connect with readers or listeners, evoke emotions, and motivate others who may have experienced similar challenges. This analysis can provide valuable lessons and insights that can be applied to personal growth, resilience, and social change.

In Summary, analyzing IASSR provides valuable insights into the human experience, showcasing the power of resilience and determination in overcoming obstacles. In addition to that, understanding the linguistic and narrative techniques used in these stories enhances our comprehension of how attitudes are conveyed and can inform strategies for effective communication and storytelling in various contexts.

3. Data Analysis

The eclectic model developed in the previous section is used for analyzing the selected story qualitatively and quantitatively.

3.1. Qualitative Analysis

In this section, *Hate is Virus* (Michelle K. Hanabusa) (2021)²⁵⁾ is subjected to qualitative analysis according to the eclectic model. The first model to be employed is the Labovian model for narrative analysis, which will be used to examine the structure and elements of the story. It involves dissecting the story's components systematically. The abstract encapsulates the core theme, navigating through Hanabusa's experience with racism. The orientation unveils the contextual backdrop, introducing characters and setting. The complication dissects the central conflicts, scrutinizing pivotal moments in the narrative. The evaluation phase assesses the emotional and judgmental linguistic expressions embedded in Hanabusa's storytelling. Finally, the resolution unveils how Hanabusa triumphs over challenges, detailing the linguistic strategies that convey the conclusion of her inspirational autobiographical success story of combating racism. This approach facilitates a nuanced linguistic analysis of the narrative's structure and content. Within the six elements of the Labovian

model, the Appraisal Theory and Transitivity Model will be included to investigate the attitudes and action processes in the story. Through the implementation of the eclectic model, a comprehensive understanding of the selected story will be sought.

"*Hate is Virus*" by Michelle K. Hanabusa is a personal story of the author's struggle with identity as a Japanese American. Growing up in a multicultural household with an Americanized father and a mother from Japan, she faced confusion about her own identity. She shares an experience of encountering racist comments and discrimination, feeling like an outsider. In college, she embarked on a journey to explore her heritage and culture, which ignited a sense of pride. Finding her voice and purpose, she gained confidence to speak up against hate and discrimination.

The Analysis begins with Labov Model six elements of narration, as follows (See the appendix for more specific examples from the narrative to illustrate how each component of the Labovian model functions in the story):

a. Abstract

No abstract exists in this narration.

b. Orientation

"My name is Michelle K. Hanabusa. I am 29 years old from Los Angeles, It was a lot of just trying to be like what I was seeing others being."

The orientation provides background information about Michelle K. Hanabusa, a 29-year-old fourth-generation Japanese American from Los Angeles, California. Her father, a third-generation Japanese American, assimilated into American culture, while her mother, born and raised in Japan, later immigrated to the United States. The combination of their cultural backgrounds created a diverse household. Michelle shares the challenge she faced in defining her identity due to the contrasting influences and perspectives within her family while growing up.

According to the appraisal theory, the narrator expresses an "interesting" and "beautiful" attitude towards the blend of cultures in her household, reflecting a positive emotional response. Words like "really, really interesting" and "very confusing" convey a strong affective reaction to the situation, e.g. "My household was really, really interesting because my father is a third-generation Japanese American". (**Affect**). While the narrator doesn't explicitly state judgment, her description of the household as a "beautiful blend" and her struggle to define her identity suggests a favorable view. The absence of negative language implies a non-judgmental or positive attitude towards the cultural mix, e.g. "It was a very interesting and beautiful blend of the two that I think" (**Judgment**). The narrator also exhibits appreciation for her Japanese and American heritage, describing it as a "very interesting and beautiful blend." Terms like "struggled" and "confusing" acknowledge the complexity of her identity but also imply a sense of value and significance placed on her multicultural background, e.g. "I really struggled with because it was very confusing for me" implicating by that a negative attitude (**Appreciation**).

Analyzing the story orientation through the transitivity model reveals three types of verbs. Material verbs like 'born, raised, immigrated,' (e.g. I was born and raised in California ... and immigrated here). These material verbs indicate actions or events that involve physical or tangible activities and provide information about the subject's background, experiences, and movements by describing concrete actions related to birth, upbringing, and relocation. Mental verbs like 'think, struggled, seeing,' relate to cognitive processes, thoughts, and emotions. These verbs convey the subject's perspectives, internal experiences, and reflections on their past or present circumstances. (e.g. I think, growing up, I really struggled with

because it was very confusing). Relational verbs like 'is, am, was' can be identified. These verbs establish relationships or identities between the subject and other elements in the sentence. They link the subject to certain qualities, characteristics, or roles (e.g. I am a fourth-generation Japanese American).

c. Complicating Action

"Regarding my own interactions with racist comments and discrimination...It never really occurred to me until that point where I was like, 'Wow, people see me as the other.'"

The complicating action in this scenario is a racist comment made by the friend's mother. This introduces conflict and tension by showcasing a discriminatory attitude towards the speaker. It brings discomfort and unease, revealing that the speaker is perceived as different and inferior based on their race. This action intensifies the internal struggle of how to respond to such incidents and underscores the impact on the speaker's sense of identity and belonging.

The speaker's description of her experience with racist comments and discrimination evokes a sense of emotional impact, where negative attitude predominates the complicating action, for example, "upset" and "kept inside" suggest a negative emotional response to the situation. The use of phrases like "looked at me" and "Why is there a monkey in this room?" conveys a sense of surprise and hurt (**Affect**). The speaker's judgment is evident in her evaluation of the situation. She expresses disapproval and dissatisfaction with the mother's racist comment by stating that her father was "so upset." The phrase "people see me as the other" indicates a realization that she is being perceived negatively based on her race (**Judgment**). In this particular excerpt, there is no explicit expression of appreciation. The focus is more on the affective and judgmental aspects of the speaker's experience and the negative attitude dominates the whole scene.

Analyzing the story complicating action according to the transitivity model reveals many types of verbs. Mental verbs like 'remember,' 'looked at,' 'think,'. These verbs express the subject's mental activities, perceptions, and reflections during the complicating action of the story (e.g. remember going over to a friend's house with some friends). Relational verbs like 'was,' 'are,'. These verbs establish relationships or identities between the subject and other elements in the sentence. In the context of the complicating action, these verbs describe the state or condition of the subject and their surroundings (e.g. there was just a bunch of friends around). Verbal verbs, on the other hand, like 'telling,' 'they didn't say,' 'respond,' involve communication or speech-related actions. These verbs depict the subject's verbal interactions, conversations, or lack thereof, during the complicating action. (e.g. and telling my father this, ... But I didn't say anything). Finally, behavioral verbs like 'kept,' 'occurred' pertain to observable actions or behaviors. These verbs capture the subject's physical or external actions during the complicating action (e.g. something that I kept inside).

d. Evaluation

"Looking back and reflecting on that time of my life, I've really come to realize that, like, yes...you know? I was so integrated in a different part of me, um, my entire life."

In his evaluation of his past experiences, the speaker reflects on their mission to fit in and be accepted by communities different from their own. He recognizes the role of being seen as a stereotype or token Asian in predominantly white groups, and evaluate how this integration impacted their identity and life.

The language used in this passage reflects a mix of positive and negative emotions. The speaker expresses a sense of self-reflection and realization, indicating a personal growth or transformation. Words like "looking back," "realize," and "entire life" suggest a deep emotional impact, e.g. "Looking back and reflecting on that time of my life" where the positive attitude is the prevailing one (**Affect**). The speaker evaluates her past experiences and attitudes towards fitting in and being accepted by other communities. She expresses some dissatisfaction with her previous mindset, as indicated by phrases such as "try to fit in" and "token Asian." This suggests a critical assessment of her past actions and beliefs, e.g. "Even just being like the twinkie or like the token Asian" which reflects a negative attitude (**Judgment**). While there is not a strong sense of explicit appreciation in this passage, the speaker's reflection and self-awareness can be seen as a form of appreciation for her personal growth and development. The use of phrases like "I've really come to realize" suggests a growing understanding and value placed on her own experiences reflecting by that a positive attitude (**Appreciation**).

Analyzing the story evaluation through the transitivity model reveals three types of verbs. Mental verbs like 'realize,' (e.g. I've really come to realize that ...). These verbs express the subject's mental activities, perceptions, and insights during the evaluation phase of the story. Relational verb like 'was so integrated,' describes the subject's level of integration or assimilation into a particular aspect of their identity. (e.g. I was so integrated in a different part of me). And behavioral verbs like 'try to fit,' 'try to be accepted' depict the subject's efforts or attempts to conform, adapt, or seek acceptance during the evaluation phase of the story (e.g. try to fit in and try to be accepted).

e. Result or Resolution

"And then college, that post-college, that was really the journey when I was like...when something sparked inside me where I was like, I did not embrace any of this growing up."

The passage suggests that after college, he realized that the path he was on was not fulfilling or successful. He decided to make a complete change in his life but was unsure of what that meant at the time. He began to explore and learn about his own heritage and culture, which he found to be fascinating and inspiring. This discovery ignited a passion within him, and he realized that he had not fully embraced his heritage while growing up.

The speaker expresses a positive and enthusiastic attitude towards her exploration of her own heritage and culture in a way that the positive attitude is the hallmark of the results and resolution Labovian element. Words like "dope" and "cool" reflect this positive affect, e.g. "You, this is dope. Like, our community and our culture is so cool" (**Affect**). The speaker reflects on her past and acknowledges that she did not embrace her heritage and culture while growing up. This implies a negative judgment of her previous attitude. However, there is also a shift in judgment as she expresses a newfound appreciation for her community and culture. Words like "isn't working" and "embrace" reflect the speaker's judgment of her previous lack of interest, while words like "explore" and "learn" reflect her positive judgment of her current exploration and engagement, e.g. "I did not embrace any of this growing up"; "I started to explore and really try to learn my own heritage and my own culture" (**Judgment**). The speaker shows a growing appreciation for her own heritage and culture. She describes her community and culture as "cool" and expresses excitement about her discoveries. This reflects a positive appreciation for her cultural identity, e.g. "Like, our community and our culture is so cool" (**Appreciation**).

Analyzing the story resolution through the transitivity model reveals many types of verbs. Material verbs like 'working,' express the subject's assessment or realization that a particular approach or situation is not effective or successful. (e.g. because this isn't working); mental verbs like 'need,' 'know,' 'think,' express the subject's mental activities, reflections, and convictions during the resolution phase of the story (e.g. And I think that's when something sparked inside me); relational verbs like 'was,' 'is,' describe the subject's state, realization, or identification with a particular aspect or phase of their journey (that was really the journey when I was like); and behavioral verbs like 'try to explore,' 'try to learn' depict the subject's intentional efforts or actions to engage in certain activities or pursuits during the resolution phase. (e.g. I started to explore and really try to learn my own heritage).

f. Coda

"When I started to really find my purpose and my voice, that's when I started to really feel confident enough to say something and to speak up because I couldn't just sit there and stay silent."

In this case, when he began to discover his purpose and develop a strong sense of self-expression, he also gained the confidence to express his thoughts and opinions. Before this point, he may have felt hesitant or unable to speak up and remain silent. However, once he found his voice and understood his purpose, he realized the importance of sharing his perspective and no longer wanted to passively observe or withhold his thoughts.

The speaker expresses a sense of "empowerment" and growing confidence, using words like "really find my purpose" and "like my voice." These phrases indicate a positive emotional state, reflecting enthusiasm and satisfaction. The mention of "started to really feel confident enough" suggests a shift from a previous lack of confidence, highlighting an emotional transformation (**Affect**). The speaker evaluates her own actions and decisions, expressing a critical stance towards her past behavior of remaining silent. The phrase "couldn't just sit there and stay silent" conveys a disapproval of her previous silence, indicating a negative judgment. This implies a shift in attitude towards being more assertive and vocal (**Judgment**). The speaker appreciates the process of finding her purpose and voice, conveying a positive attitude towards personal growth. Words like "really find," "feel confident," and "speak up" express appreciation for the journey of self-discovery and the ability to express oneself, e.g. "I started to really find my purpose and my voice" (**Appreciation**).

Analyzing the story coda according to the transitivity model reveals three types of verbs. Material verbs like 'couldn't just sit,' 'stay,' express the subject's refusal to remain passive or inactive in a particular situation (e.g. I couldn't just sit there and stay silent); mental verbs like 'find,' 'feel,' express the subject's internal experiences, self-discovery, and emotional states during the coda phase of the story (e.g. I started to really find my purpose and my voice); and verbal verbs like 'say,' 'speak up' depict the subject's active use of their voice, expression, or communication to convey their thoughts and opinions. (e.g. to say something and to speak up).

3.2. Quantitative analysis

This section, conducts a comprehensive quantitative analysis of *Hate is Virus* (Michelle K. Hanabusa) (2021). The main objectives of the preceding table 1 will be to apply Appraisal Theory to determine the frequencies of words that convey positive or negative attitude. This analysis will provide a more profound insight into the manifestation of attitude according to Appraisal Theory.

Table 1. The Quantitative Analysis of Appraisal Theory of *Hate is Virus* Story

Appraisal Theory Labovian Elements	Attitude	Affect	Judgment	Appreciation
ORIENTATION	Positive	1	1	1
	Negative	0	0	0
COMPLICATING ACTION	Positive	0	0	0
	Negative	1	2	0
EVALUATION	Positive	1	0	1
	Negative	1	1	0
RESOLUTION	Positive	1	2	1
	Negative	0	1	0
CODA	Positive	2	1	2
	Negative	0	1	0
Total Positive Attitude	(66.66%)	Total Negative Attitude		(33.33%)

In table 2, the primary goals include delving into the employed transitivity model within the examined story. This examination aims to offer a deeper understanding of how the transitivity model is utilized in the narrative of this particular story.

Table 2. The Quantitative Analysis of Transitivity in *Hate is Virus* Story

Process Labovian Elements	Material	Mental	Relational	Verbal	Existential	Behavioral	
ORIENTATION	5	3	10	0	0	0	
COMPLICATING ACTION	0	8	5	3	0	3	
EVALUATION	0	1	1	0	0	2	
RESOLUTION	1	3	5	0	0	3	
CODA	2	2	0	2	0	0	
TOTAL	8	17	21	5	0	8	
PERCENTAGE	13.55%	28.81%	35.59%	8.47%	0	13.55%	100%

3.3. Results and Discussion

a. Labovian Model

The discussion of the racism story in this research primarily centered on using the Labovian model. The racism story seems to skip the abstract, immediately delving into personal experiences, aiming to establish a strong identity and connection to nationality or heritage. This approach emphasizes personal narratives and the emotional impact of racism,

fostering deeper understanding and feelings of pride, empowerment, and resilience. Analyzing Michelle K. Hanabusa's narrative according to the Labovian model, one noticeable aspect is the omission of an abstract at the beginning. This departure from the traditional structure might be intentional, serving the purpose of immediately engaging the audience and creating a direct connection to the personal experiences shared. This choice reflects an intent to capture attention and set a tone of immediacy.

In terms of the sequence order, the narrative follows the basic arrangement of the Labovian model without significant deviation. It begins with the orientation, progresses through complicating action, evaluation, resolution, and concludes with a coda. This adherence to the basic sequence aligns with the natural flow of the narrator's memories and emotions, enhancing the authenticity of the storytelling by reflecting the non-linear nature of personal recollections.

Additionally, when examining the story's components, it becomes evident that they tend to have a balanced length. Each stage of the narrative receives sufficient attention, contributing to the overall coherence of the story. This balance ensures that no part feels rushed or overly detailed, aiding in pacing and allowing the audience to absorb and understand the story effectively.

In brief, when examining the story using the Labovian model, it captivates the audience by skipping an abstract, creating immediacy. The narrative follows the Labovian sequence order—orientation, complicating action, evaluation, resolution, and coda—which enhances its authenticity. The story maintains the Labovian model's fundamental structure, ensuring a well-balanced length in its components. This strategy contributes to coherence, smooth pacing, and an authentic exploration of themes like identity, racism, and self-discovery, providing a compelling journey within the Labovian framework.

b. Appraisal Theory

Secondly, the story is analyzed using Appraisal Theory, following the narrative structure outlined by Labov. Analyzing the orientations of Michelle K. Hanabusa's "*Hate is Virus*" evokes a mix of positive and negative affect, appreciating the multicultural aspects of her background but acknowledging struggles. While explicit judgment is not pronounced, the narrative reflects a range of emotional responses.

In general, this racism story commonly starts with a positive orientation, sharing personal details. This positive beginning aims to establish credibility, create a contrast with racism experiences, and counteract victimization narratives. Through focusing on achievements and strengths, individuals challenge stereotypes and highlight resilience, contributing to a collective effort against racism for a more inclusive and understanding society.

In the story complicating action, the speaker's narrative unfolds with a strong affective impact, as she vividly describes the emotional toll of experiencing racist comments and discrimination. Words like "upset" and "kept inside" underscore the negative emotional response, while phrases such as "looked at me" and "Why is there a monkey in this room?" convey surprise and hurt. Simultaneously, the speaker's judgment is evident in her explicit disapproval of the situation, highlighted by her father's strong reaction. The phrase "people see me as the other" reflects a poignant realization, emphasizing a negative judgment about being perceived unfavorably based on her race. There is no explicit appreciation in this particular excerpt since the focus is more on the affective and judgmental aspects of the speaker's experience.

In summary, the prevailing attitude in the complicating action is predominantly negative. The speaker's vivid depiction of emotional distress, coupled with explicit disapproval and a poignant realization about racial perceptions, contributes to an overall negative tone. The absence of explicit appreciation underscores the challenging and adverse nature of the

speaker's experience.

In the evaluation of the story, the evaluation combines mixed affect, negative judgment, and positive appreciation. Hanabusa reflects on past efforts to fit in, appreciating the sense of belonging but negatively judging the compromise of her true identity. Despite negative impacts, there's positive appreciation for self-reflection, growth, and rejecting conformity.

Summing up, the evaluation encompasses a mix of negative and positive perspectives. Narrators express negative attitudes towards the impact of racism and societal expectations. However, there's a positive attitude towards self-discovery, embracing authentic identities, finding humor, and the positive reception of cultural expressions. The reflects a nuanced evaluation of racism, capturing both its detrimental effects and the empowering aspects of embracing one's true identity.

In the resolution, a positive affect is evident as she expresses her enthusiasm for exploring her heritage and culture. The mixed judgment arises from her recognition that she did not embrace her culture while growing up, which implies some regret or disappointment. The positive appreciation comes from her realization that her community and culture are "cool." The overall positive affect and positive appreciation outweigh any negative judgment, as she seeks to change her situation and learn more about her identity. So, the resolution portrays a positive and transformative shift in the speaker's attitude towards embracing her heritage.

In the coda, the positive affect is mixed with judgment and positive appreciation. The speaker portrays a positive affect by finding her purpose and voice, which leads to confidence and the motivation to speak up against injustice. The judgment comes through in her realization that staying silent is not an option, showcasing a thoughtful and considered approach. The positive appreciation is evident in her journey to assert herself and stand against hate, reflecting resilience and determination.

In conclusion, the coda combines positive affect, mixed judgment, and positive appreciation, highlighting the necessity of finding one's voice and speaking up against hate.

In conclusion, the analysis of the racism story through Appraisal Theory reveals a nuanced interplay of attitudes. While narratives start positively, addressing personal details, the complicating action depicts negative orientations, reflecting obstacles and challenges. The evaluation phase presents a mix of negative and positive perspectives, capturing the complexities of racism's impact. Resolution uniformly pivots towards positive outcomes, highlighting success, growth, and empowerment. Coda solidify positive attitudes, emphasizing the ongoing battle against racism for a more inclusive society. This comprehensive analysis underscores the transformative power of resilience, determination, and personal growth in the face of challenges, aligning with the overarching goal of inspiring hope and fostering understanding. This reveals the intricate interplay between personal experiences, societal challenges, and individual responses which can be manifested in three main interrelated aspects:

- a. **Impact of Racism:** The narratives provide insights into the emotional, mental, and social effects of racism, highlighting its pervasive nature and its detrimental impact on individuals' well-being and sense of identity.
- b. **Resilience and Empowerment:** Despite facing adversity, storytellers demonstrate resilience, determination, and empowerment, inspiring others to confront racism, assert their identities, and advocate for change.
- c. **Personal Growth and Self-Discovery:** Confronting racism becomes a transformative journey for individuals, fostering personal growth, self-discovery, and a deeper understanding of their cultural heritage and identity.

Overall, the analysis underscores the importance of amplifying marginalized voices, challenging stereotypes, and fostering empathy and solidarity to address systemic injustices and build a more inclusive and just world.

c. Transitivity Model

Thirdly, the utilization of Holliday's transitivity model was applied for the analysis. In term of orientation, (10) relational verbs such as "my name is," "I am," and "I was born and raised" are employed to share factual information about Michelle's background and identity. These verbs play a crucial role in building her personal narrative and experiences. The positive attitude in Michelle's story is conveyed through relational verbs, expressing appreciation and beauty as she describes her unique blend of Japanese and American cultures, overcoming initial struggles in understanding her identity.

From the perspective presented, it is believed that the intentional use of relational verbs in the racism story effectively conveys the positive attitudes of the storyteller, highlighting her connection and pride in her identity despite the challenges presented in the narratives.

Considering the complicating action, (8) mental verbs like "remember," "didn't know," "think," "experienced," "aren't taught," and "see me" expose the narrator's confusion and realization of being seen as different because of racist comments. These verbs also align with the negative feelings in the Appraisal Theory, showcasing the character's emotional and cognitive struggles with racism. In this story, the words used match the sad feelings expressed in Appraisal Theory, showing how racism affects characters emotionally, mentally, and in their connections.

Considering The evaluation, the mixed feelings in the appraisal make sense because of (2) behavioral verbs like "trying to fit" and "trying to be accepted." These verbs explain the narrator's actions to belong. Also, the verb "reflecting" gives a reason for their pursuit of acceptance. Including these verbs fits with the mixed feelings in the appraisal, showing a mix of empathy for the narrator's struggles and the challenges she faces. In conclusion. The presence behavioral verbs underscore the coping mechanisms employed by individuals.

In analyzing the resolution, (5) relational verbs like "I was like" and "this is dope" express her emotional reactions, embodying a positive attitude. These verbs showcase enthusiasm, empowerment, and personal growth, linking Michelle's self-discovery and cultural embrace to her fight against racism. The use of relational verbs adds context and emphasizes the positive transformation in her journey. In summary, Michelle K. Hanabusa's positive tone is primarily shaped by relational verbs.

In the coda, a balanced use of (2) material, mental, and verbal verbs reflects the overall theme of fighting against racism and discrimination. The (2) material verbs, such as "couldn't just sit" and "stay silent," imply the need for tangible actions against racism. The (2) mental verbs, like "started to really find my purpose" and "started to really feel confident," depict the internal growth and self-discovery that empower the protagonist to take action. The (2) verbal processes, "say something" and "speak up," signify the importance of using words to challenge and combat racism. The use of a balanced number of these verb types suggests that addressing racism requires a comprehensive approach. It involves not only taking concrete actions but also supporting one's mentality and beliefs. By combining material actions, mental resilience, and vocal advocacy, individuals can effectively fight against racism and discrimination. The coda emphasizes the significance of both action and words in the ongoing struggle against racism, highlighting the need to actively engage and express one's voice to bring about change. Overall, in the coda, the prevailing type of verb process varies, presenting nuanced attitudes towards racism, showcasing a comprehensive approach to combating racism with a positive and proactive stance.

To bring it all together, the analysis of Michelle K. Hanabusa's narrative, employing the Labovian, Appraisal Theory, and Transitivity models, intricately weaves a tapestry of attitudes that collectively shape a transformative journey. The Labovian Model initiates engagement with immediacy, allowing for a balanced exploration of the narrative components. Appraisal Theory delves into emotional nuances, portraying a hierarchy of attitudes from negative to positive throughout the complicating action, evaluation, resolution, and coda. Concurrently, the Transitivity Model enriches the narrative by emphasizing verb processes, offering a nuanced perspective on the speaker's internal and external experiences. This cohesive interplay between models reflects a comprehensive exploration of resilience, personal growth, and empowerment, highlighting the intricate connection between inspiration and success in the face of societal challenges.

The analysis of Michelle K. Hanabusa's narrative, employing Labovian, Appraisal Theory, and Transitivity models, offers a nuanced exploration of her transformative journey. The Labovian Model engages the audience immediately, presenting a well-balanced narrative structure. Appraisal Theory delves into emotional nuances, showcasing a shift from negative orientations to positive outcomes. Simultaneously, the Transitivity Model enriches the narrative by emphasizing verb processes, providing insight into internal and external experiences. Collectively, these models reveal the intricacies of resilience, personal growth, and empowerment within the broader discourse on racism. The study underscores the power of personal narratives in challenging stereotypes, fostering understanding, and contributing to a more inclusive society. In summary, the analysis unveils the multi-faceted nature of Hanabusa's story, emphasizing the interconnectedness of inspiration and success in overcoming societal challenges and promoting personal growth.

4. References

Based on the preceding analysis conducted, it is possible to derive the following conclusions:

1. The application of the Labov model allows for the observation of narrative structure and storytelling techniques in *Hate is Virus* (Michelle K. Hanabusa) (2021) racism story. It helps identify elements such as the orientation (background information), complication (racism incidents), and resolution (responses and outcomes) within the narrative, providing a structured framework for understanding the progression of the story.
2. The use of the Appraisal theory reveals the presence of mixed attitudes in the story. It demonstrates that this narrative often reflects both negative evaluation (e.g., experiences of discrimination, pain) and positive evaluation (e.g., resilience, personal growth). The theory helps uncover the complex emotional landscape and varied responses to racism, challenging simplistic portrayals of victims or perpetrators.
3. The analysis of the racism story using the Transitivity model reveals a variety of verb processes, including relational, behavioral, mental, and material processes. These verb types serve different purposes in the narrative. Relational processes highlight the connections and relationships between characters and their cultural identity, shedding light on the impact of racism on these relationships. Behavioral processes emphasize the actions, behaviors, and responses of individuals in the face of racism, showcasing their agency and resistance. Mental processes provide insights into characters' thoughts, emotions, and perspectives, offering a deeper understanding of their experiences and coping mechanisms. Material processes focus on concrete actions and efforts undertaken to address racism, emphasizing the tangible steps taken by characters to combat discrimination. The presence of these diverse verb processes within the story adds richness and complexity to the portrayal of racism and its effects on individuals and communities.

Many other studies can be avenues for future research. One of these suggested studies is Cultural Variations in Autobiographical Success Stories: Exploring Narrative Structure and Themes across Different Cultural Contexts. Another study can tackle the same topic of AISSR by comparing this story to other stories of racism or any other field like technology stories or self-development stories.

Appendix

Hate is Virus story by Michelle K. Hanabusa (2021)

(Orientation) My name is Michelle K. Hanabusa. I am 29 years old from Los Angeles, California, and I am a fourth-generation Japanese American. I was born and raised in California. My household was really, really interesting because my father is a third-generation Japanese American, so he was very "Americanized.". My mother, on the other hand, was born and raised in Japan and immigrated here. It was a very interesting and beautiful blend of the two that I think, growing up, I really struggled with because it was very confusing for me to kind of figure out like what my identity was. It was a lot of just trying to be like what I was seeing others being.

(Complicating Action) Regarding my own interactions with racist comments and discrimination, remember going over to a friend's house with some friends, and his mother kind of just looked at me, like, at the dinner table. Like, there was just a bunch of friends around, and she was like, "Why is there a monkey in this room?" I remember, like, going home and telling my father this, and he was so upset. But I didn't say anything, you know, because I didn't know how you were supposed to respond. So it was just kind of something that I kept inside. And, you know, I think when you're that young and you experience that, like, you aren't taught to respond. It never really occurred to me until that point where I was like, "Wow, people see me as the other."

(Evaluation) Looking back and reflecting on that time of my life, I've really come to realize that, like, yes, my whole mission was to try to fit in and try to be accepted by other communities that don't look like me. Even just being like the twinkie or like the token Asian that is like, cool enough to hang out with like the white crew, you know? I was so integrated in a different part of me, um, my entire life.

(Result or Resolution) And then college, that post-college, that was really the journey when I was like, you know what, I need to change everything completely because this isn't working. And I didn't know what that meant just then, but I started to explore and really try to learn my own heritage and my own culture. I was like, "Yo, this is dope. Like, our community and our culture is so cool." And I think that's when something sparked inside me where I was like, I did not embrace any of this growing up.

(Coda) When I started to really find my purpose and my voice, that's when I started to really feel confident enough to say something and to speak up because I couldn't just sit there and stay silent.

Yellow Labovian Model

Green Positive Attitude

Red Negative Attitude

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

How Do Anxiety about Contracting COVID-19 and the Perceived Risk of Financial Loss from COVID-19 Interact to Increase Consumer Impulse Buying?

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ABSTRACT

While preceding research has focused on various aspects of the pandemic, there is still a need for further exploration of the relationship between preventive behavior against the pandemic and impulse buying. This study fills a gap by exploring how the fear of contracting COVID-19 and perceived financial losses from the pandemic interplay, and how they combine to drive impulse buying behavior, while considering the mediating role of preventive behavior. To investigate our hypothesis, we collected data from 760 respondents in South Korea through in-person survey. Using the PROCESS macro in SPSS model-58, we analyzed the data and found that the mediator role of preventive behavior and moderating role of perceived financial loss risk from COVID-19 significantly influence the relationship between the fear of COVID-19 infection and impulse buying. Specifically, when individuals perceive a higher risk of infection, they are more likely to engage in preventive behaviors. However, the negative relationship between preventive behavior and impulsive purchases weakens when there is a high perceived risk of financial loss.

Keywords: COVID-19, perceived risk of financial loss, impulse buying, preventive behavior, fear of infection.

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Received: 2024/01/10 ; *Revised:* 2024/06/18 ; *Accepted:* 2024/06/25 ; *Published:* 2024/10/30



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1. Introduction

The significance of comprehending how the COVID-19 pandemic impacts individuals has been emphasized, as it is not just a medical concern but a societal issue¹⁾. Researchers from multiple disciplines have specifically been urging for attention to be given to the psychological well-being of different demographics, and in this regard, comprehending the effect of the pandemic on people's everyday lives is a crucial matter²⁾. In the medical field, Banerjee and colleagues highlighted those physicians faced several challenges during the pandemic. These included the fear of contracting the virus, shortages of safety equipment, inadequate training, and social discrimination³⁾.

The infection fears from the virus, and the risk of financial loss from the pandemic are two key factors that have been identified as driving these changes in mental health and well-being^{4,5)}. In addition to causing economic volatility, they have affected consumer buying choices globally⁶⁾. It is not unexpected that the altered lifestyle caused by the pandemic has resulted in a shift in consumer behavior, including changes in spending habits. Research implemented by Pantano, and Sheth suggests that peoples tend to buy on impulse more often during the pandemic than before^{7,8)}.

Furthermore, preventive behavior is a crucial precondition for modifying behavior, not only to safeguard oneself against infection but also to prevent possible harm to the health of others⁹⁾. Numerous preventive measures, including maintaining cleanliness and disinfection, staying indoors, and maintaining cleanliness and disinfection, are suggested to prevent virus transmission¹⁰⁾. According to Rhodes and colleagues, individuals are implementing measures such as staying indoors, practicing social distancing, and using disinfectants and sanitizers to lower the chances of getting infected with COVID-19¹¹⁾.

To counteract the spread of the pandemic, a range of strategies have been implemented by individuals, governments, and organizations to combat the virus from spreading. A combination of active vs. passive and positive vs. negative frameworks can be used to understand the different human responses to the pandemic. As an example, Fong et al. noted that addressing COVID-19 involved a range of public health interventions, including active and passive measures such as case identification and isolation, contract tracing, quarantine, and social distancing¹²⁾. In contrast, Bavel et al. explored the social identity role in shaping positive and negative responses to the pandemic¹³⁾. They found that people who identified strongly with their local community had a strong attachment to their local community tended to exhibit constructive action, such as following social distancing rules and helping others, whereas those who had a strong political affiliation were more prone to negative behaviors such as disregarding public health recommendations.

More specifically, active and positive responses, such as getting vaccinated, wearing masks, and adhering to social distancing guidelines, are based on the belief that these measures effectively limit the transmission of the virus and safeguard public health. For instance, Lunn et al. argued that individuals who believed social distancing was fruitful in decreasing the virus diffusion were more prone to adopt social distancing guidelines¹⁴⁾. Similarly, Khubchandani et al. confirmed that lower perceived susceptibility to COVID-19 and disease severity were significantly associated with vaccine hesitancy¹⁵⁾.

In contrast, passive and negative responses, such as refusing to wear masks, ignoring social distancing guidelines, and spreading misinformation about the virus, are often based on the belief that Covid-19 is no more serious than influenza or that no action can prevent the ongoing virus diffusion. Roozenbeek et al. discovered that individuals who believed in conspiracy theories or had low trust in science and government were more prone to accepting misinformation regarding the pandemic and less likely to take preventive measures¹⁶⁾. Betsch et al. reported comparable findings that individuals with lower confidence in the government and medical authorities were less inclined to adopt preventive behaviors like

wearing masks and maintaining social distancing¹⁷⁾.

Governments around the world have also shown varying responses to the pandemic in terms of swiftness and strictness¹⁸⁾. However, it is challenging to make specific claims about countries and their responses to COVID-19 because the pandemic is an evolving situation, and government responses are subject to change as the situation evolves.

While there have been various responses to the pandemic, the effects of these responses on consumer behavior, including impulse buying, have not been investigated thoroughly. Additional investigation is necessary to comprehend the influence of how preventive behaviors (active and positive responses) have influenced consumer behavior during the pandemic. Improving public health messaging and developing effective marketing strategies for businesses during the pandemic period could benefit from utilizing this knowledge.

To fill this research gap, we pose the following research questions: (1) How does active and positive action against COVID-19 come about? What are the drivers? (2) What are the psychological consequences of active and positive behavior against COVID-19? Does it pay off?

This paper explores how the fear of COVID-19 infection and perceived financial loss risk, along with their interaction, lead to impulse buying behavior. The study also considers the mediating role of preventive behavior while addressing these questions. Previous research has largely been aimed at assessing various effects of the pandemic. Despite the pandemic's preventive behavior, the relationship between preventive behavior against the pandemic and impulse buying remains understudied. Some studies have examined the connection between preventive behavior and impulse purchases in other contexts, such as the relationship between impulse buying and preventive health practices. However, to the best of the researcher's knowledge, no research has yet empirically studied the influence of COVID-19 preventive measures on impulse buying.

2. Hypothesis Development

2.1. Fear of COVID-19 Infection and Preventive Behavior

Protection Motivation Theory (PMT) proposes a direct relationship between fear and the motivation to protect oneself, as suggested by Rogers¹⁹⁾. Many studies have demonstrated that fear can drive individuals to adopt preventive behaviors. Stephenson & Witte²⁰⁾ found that fear was linked to taking preventive action, such as applying sunscreen to protect against skin cancer. Similarly, a study by Terblanche-Smit & Terblanche²¹⁾ found that participants had a more positive perception of HIV/AIDS messages when presented with medium and high fear appeals rather than low fear appeals.

Several studies have investigated the antecedents of consumer preventive behavior in relation to pandemics, specifically COVID-19. These studies have concentrated on different elements that could impact the behavior of consumers, such as fear appeals, perceived susceptibility, perceived benefits, and self-efficacy^{3,11,22,23)}.

Specifically, Rhodes et al. reported that participants implemented such preventive behaviors to minimize the chances of contracting the infection¹¹⁾. Banerjee et al.'s study also highlighted that to safeguard oneself and those close to them, fear of catching the virus increased related preventive behaviors³⁾. Wu et al. conducted a survey in 244 cities in China and discovered that citizens' anxiety levels could be positively affected, leading to improved preventive behaviors, by the physical distance from confirmed cases²⁴⁾.

Therefore, it can be argued that the anxiety about COVID-19 contraction will increase preventive behaviors.

H1. The fear of COVID-19 infection leads to an increase in preventive behavior.

2.2. Perceived Risk of financial loss due to COVID-19 and preventive actions

Behavioral economics has provided insights into various health behaviors that involve risks and preventive actions²⁵. Soofi et al. examined the actions associated with the COVID-19, such as optimism bias, herding behavior, present bias, framing effect, and status quo bias²⁶.

In the present bias context, various health behaviors require choosing between immediate and future consequences. The decision to not follow stay-at-home policies involves trading the pleasure of going out now for the uncertain risk of catching COVID-19. Therefore, researchers suggest that people who prioritize immediate pleasure are relatively unlikely to follow COVID-19 preventive actions, such as staying at indoors and washing their hands. Additionally, herding behavior takes place when individuals judge a behavior's quality by observing and coping with others' actions.

On the other hand, Truong D. and Trung M.D. explored the modifications in people's shopping behaviors caused by COVID-19, they demonstrated that shopping behavioral changes are influenced by concerns regarding both health and financial conditions. Fears regarding these issues compel people to modify their shopping behaviors by selecting modes of shopping that help them manage or evade the risks involved²⁷.

Studies have shown that the relationship between financial insecurity and preventive behaviors may differ depending on the mode and the type of preventive behavior in question. Faulkner et al. stated that individuals with a higher socioeconomic status were more inclined to participate in physical activity while COVID-19 containment measures were in place²⁸. Furthermore, those who regularly participated in physical activity during this period had better mental and physical well-being outcomes than their fewer active counterparts. Similarly, Nivette et al. found that the common reasons for non-compliance with public health measures was commonly associated with social and emotional needs, lower income, lower levels of education, and lower trust in authorities. Contextual factors, such as living in urban areas and experiencing pandemic-related stress, were also associated with non-compliance²⁹.

Financial loss, such as unemployment due to the pandemic, has been found to be a significant stressor for individuals³⁰. Negative mental health consequences, including anxiety, stress, and depression have been associated with economic insecurity and job loss³¹. These negative mental health outcomes may further increase people's fear of coronavirus and their perceived need to act in preventive behaviors, thus reducing the risk of infection.

Based on previous research, we can argue that people's anxiety about contracting COVID-19 is more engaged to step preventive measures when there is a greater risk of financial loss from the pandemic.

H2. The relationship between the fear of contracting COVID-19 and preventive behaviors will be stronger when the perceived risk of financial loss from the pandemic is high.

2.3. Fear of Contracting COVID-19 and Impulse Buying

Bickert Zillmann's affect regulation theory argues that people tend to eliminate negative moods and pursue positive ones³². As per the theory, individuals make conscious efforts to adjust internal and external factors to minimize negative emotions and maximize positive ones. Situational cues and personal traits may both influence impulse buying^{33, 34}. In addition to the impact of personal traits, individuals tend to engage in impulse buying by negative moods like anxiety and distress³⁴. The fear of contracting COVID-19 can be considered a negative emotion that is prevalent today, and it may lead individuals to involve in impulse buying to alleviate anxiety and stress.

Vukovic et al. pointed out that the size of the global dietary supplement market doubled during the COVID-19 period³⁵.

The primary motivation behind purchasing such supplements during the pandemic was fear, according to a survey of 257 those who consume dietary supplements. The new disease was perceived by respondents as a threat to their physical condition and well-being.

Similarly, according to Naeem, groups of people who are vulnerable, as well as the fear of illness, the fear of not finding products on shelves, the fear of increased prices, and the tendency to buy more when confined at home, have all contributed to a rise in panic and impulsive buying behaviors among customers³⁶⁾. Furthermore, Gupta et al. conducted research on how consumers have responded to the pandemic³⁷⁾. Their results showed that COVID-19 has significantly influenced consumer behavioral patterns, as shown by consumers stocking up and engaging in impulsive buying behavior.

The pursuit of mood repair can have a negative impact on actively pursuing other goals, as explained by self-regulation theory³⁸⁾. This is because mitigating negative emotions and distress consumes energy and resources that are needed for self-regulation and impulse control. In other words, when individuals focus on repairing their mood, they may have fewer resources available to effectively self-regulate. Additionally, according to self-regulation theory, experiencing negative moods can lead to self-regulation failures, and emotional distress may shift an individual's priorities towards shorter-term goals, potentially resulting in impulsive behaviors. The emotional distress resulting from believing there's a higher chance of getting infected with COVID-19 may lead to impulse buying.

H3. The fear of contracting COVID-19 will increase consumer impulse buying.

2.4. Mediating role of preventive behaviors between the fear of contracting COVID-19 and consumer impulse buying

According to the mood maintenance theory³⁹⁾, individuals are driven to regulate their emotions by maintaining or improving their current emotional state. To this end, people tend to avoid risky activities that could lead to negative emotions or losses⁴⁰⁾. As individuals continually monitor their emotional states, they strive to preserve positive feelings and alleviate negative ones⁴¹⁾. To sustain good moods, refraining from engaging in risky activities may jeopardize positive feelings or result in negative outcomes⁴²⁾.

On the other hand, to improve bad moods, individuals tend to engage in uplifting activities or distract themselves from negative events. For instance, Tice et al. argued that people who experienced negative emotions following a self-regulatory task were more prone to take self-soothing behaviors to improve their mood⁴³⁾. However, amid the fear of contracting COVID-19, individuals may experience heightened anxiety and distress, leading to difficulties with emotion regulation, which in turn prompts impulsive purchasing. The Emotional Dysregulation Model⁴⁴⁾ suggests that an intolerance of negative emotions prompts impulsive behaviors. According to previous research, impulsive behavior may protect anxious individuals from negative emotions⁴⁵⁾. Moreover, uncertainty and the negative emotions it arouses can trigger impulsive behavior⁴⁶⁾.

Meanwhile, preventive behaviors may help maintain one's emotional regulation because actions such as wearing masks and practicing social distancing can protect individuals' physical health and also foster a sense of control and safety⁴⁷⁾. These behaviors provide a tangible means of addressing the underlying anxiety associated with the fear of infection, thereby reducing the need for impulsive purchasing as a coping mechanism. This notion aligns with Taylor's argument that psychological factors, such as fear of COVID-19, influence individuals' coping mechanisms during a pandemic⁴⁸⁾.

Despite the significance of understanding these psychological mechanisms, existing studies have primarily focused on

preventive health behaviors⁴⁹⁾, neglecting the relationship between fear appeals from the health sector and impulsive buying behavior³⁶⁾. This echoes Larson and Shin's observation of insufficient investigation into consumption behavior during natural disasters⁵⁰⁾. Building upon existing research, we investigate the relationship between the fear of contracting COVID-19 and consumer impulse buying mediated by preventive behaviors, as outlined in the following hypothesis.

H4. Preventive behaviors against COVID-19 will reduce impulsive purchasing by consumers.

2.5. Mediating Role of Perceived Risk of Financial Loss from COVID-19 between the Fear of Contracting COVID-19 and Consumer Impulse Buying

Research indicates that financial concerns and job insecurity are significant stressors that amplify anxiety and depression, effects that are particularly pronounced among disadvantaged groups such as those in low-pay or service sector jobs^{51,52)}. These groups are disproportionately vulnerable to the economic impacts of COVID-19, a susceptibility that is well-documented across different socioeconomic groups and employment sectors^{48, 53, 54)}. The pervasive fear of financial loss not only dominates the emotional landscape of individuals under high uncertainty⁵⁵⁾ but also significantly undermines the psychological benefits associated with preventive health behaviors aimed at reducing disease transmission. This disconnection highlights a critical gap: while such behaviors may lower the risk of infection, they do not mitigate the economic anxieties that fuel stress and impair mental health.

Previous studies confirm that during periods of crisis, individuals with job insecurity and financial worries exhibit deteriorated mental health^{51, 56)}. According to the Emotional Dysregulation Model⁴⁴⁾, an inability to manage stress-induced negative emotions can lead to maladaptive coping strategies such as impulsive buying. This behavior serves as a temporary relief from distress, ultimately reducing the effectiveness of preventive measures.

Therefore, it is hypothesized that the negative correlation between consumer engagement in preventive behaviors against COVID-19 and impulsive buying behaviors weakens as financial anxiety intensifies. This hypothesized attenuation results from increased financial anxiety overshadowing the psychological benefits derived from consistent health-focused actions.

H5. The negative relationship between consumer preventive behavior against COVID-19 infection and impulsive buying will be weaker when the risk of financial loss from the pandemic is high.

3. Materials and Methods

3.1. Measurements

All measurements were taken using a seven-point scale (1 = strongly disagree, 7 = strongly agree). Fear of contracting COVID-19 was assessed to use four items from Ahorsu et al.⁵⁷⁾: "I am most afraid of COVID-19," "I feel uncomfortable even just thinking about COVID-19," "My hands sweat when I think of COVID-19," and "I fear losing my life from COVID-19." The risk of monetary loss due to COVID-19 was measured using four items from Norvilitis⁵⁸⁾: "Significant economic losses are anticipated due to COVID-19," "Compared to pre-COVID-19 income, my income during the pandemic is expected to decrease," "The economy is expected to suffer due to COVID-19," and "I am worried that there will be problems such as dismissal/temporary closure due to COVID-19. Four items from Probst et al. were used to measure preventive behaviors⁵⁹⁾: "I avoid contact with people outside my family during COVID-19," "I maintain social distancing when interacting with people during COVID-19," "I avoid visiting crowded places during COVID-19," and "I prefer online shopping over in-person shopping during COVID-19." Impulse buying was assessed with five statements from Celik &

Kose⁶⁰): "I felt a lot of urges to buy something," "I often bought things I didn't plan to buy," "I have often bought things I didn't need," "I thought a lot about spending money if I had it," and "I had more unintended consumption compared to before the Covid-19 pandemic."

3.2. Data Collection

A total of 760 samples were collected from city dwellers aged 20 and older in South Korea using an in-person survey. This study was approved by the institutional review board of the university with which the researchers were affiliated. Descriptive statistics are presented in Table 1.

Table 1. Descriptive statistics (n=760)

Variable		N	%
Gender	Male	395	52
	Female	365	48
Age	-19	0	0
	20 - 29	110	14.5
	30 - 39	122	16.1
	40 - 49	145	19.1
	50 - 59	284	37.4
	60 -	99	12.9
Income level	Very low	46	6.1
	Low	228	30
	Moderate	440	57.9
	High	37	4.9
	Very high	9	1.1

3.3. Data Analysis

To test our hypothesis, we utilized the PROCESS macro (model 58) for SPSS as suggested by Preacher et al. ⁶¹), using 5,000 bootstrap samples. All key variables were mean-centered before testing for moderation effects to avoid multicollinearity. The PROCESS macro (model 58) produces two regression outputs. In Model 1, the mediator (preventive behavior) is regressed on the independent variables. In Model 2, the dependent variable (impulsive buying) is regressed on both the independent and the mediator variables. Age, gender, and income were included as covariates in both models.

4. Results

4.1. Reliability and Validity

To evaluate the reliability and validity of the variables used in multiple-question items, it is essential to calculate Cronbach's alpha score and other coefficients. In this study, each alpha score was above the minimum required. The validity of the measures was then examined using an exploratory factor analysis (EFA). This analysis used a method

of principal component analysis utilizing the VARIMAX rotation. The factor loading for each construct was acceptable (Table 2).

Table 2. Overview of the exploratory factor analysis results

Items	Impulse buying	Preventive behavior	Perceived Risk of financial loss from COVID-19	Fear of COVID- 19 infection	Cronbach's Alpha
Impulse buying1	.868	-.027	.067	.148	0.919
Impulse buying2	.862	-.009	.081	.153	
Impulse buying3	.857	.016	.093	.089	
Impulse buying4	.843	.024	.105	.145	
Impulse buying5	.836	-.019	.088	.151	
Preventive behavior1	.020	.858	.061	.171	0.882
Preventive behavior2	-.098	.848	.159	.108	
Preventive behavior3	.017	.836	.108	.171	
Preventive behavior4	.031	.817	.149	.047	
Perceived risk of financial loss from COVID-19 1	.093	.077	.867	.138	0.882
Perceived risk of financial loss from COVID-19 2	.120	.146	.836	.175	
Perceived risk of financial loss from COVID-19 3	.118	.090	.823	.158	
Perceived risk of financial loss from COVID-19 4	.063	.178	.807	.094	
Fear of COVID-19 infection1	.263	-.010	.111	.800	0.858
Fear of COVID-19 infection2	.231	.068	.180	.795	
Fear of COVID-19 infection3	.091	.272	.168	.795	
Fear of COVID-19 infection4	.094	.260	.149	.791	
Initial Eigenvalue	5.697	3.389	1.969	1.573	
% Variance explained	33.511	19.933	11.584	9.254	

Table 3 represents the correlation matrix among the variables. Absolute correlation values among constructs range from 0.023 (impulse buying-preventive behavior) to 0.378 (perceived risk of financial loss from COVID-19-fear of COVID-19 infection). Notably, all relationships, except for preventive behavior (c) and impulse buying (d), exhibited a significant positive correlation.

Table 3. Correlation table

	(a)	(b)	(c)	(d)
Fear of COVID-19 infection (a)	0.607			
Perceived risk of financial loss from COVID-19 (b)	0.378**	0.694		
Preventive behavior (c)	0.321**	0.295**	0.705	
Impulse buying (d)	0.372**	0.236**	0.023	0.697

Note(s): ** $p < 0.01$; AVEs are shown on the diagonal.

4.2. Model Estimation

The results of the analysis for both Models 1 and 2 can be found in Table 4. Model 1 included the dependent variable “preventive behavior,” with an R^2 value of .154, while Model 2 included the dependent variable “impulse buying,” with an R^2 value of .255. These values indicate that the respective models explained 15% and 26% of the observed variation within the data.

The results of Model 1 show that fear of COVID-19 infection ($b=0.217$, $SE=0.034$, $t=6.379$, $p<0.01$) and perceived risk of financial loss from COVID-19 ($b=0.217$, $SE=0.034$, $t=6.379$, $p<0.01$) have both positive and significant effects on preventive behavior. Moreover, the interaction between the fear of contracting COVID-19 and the perceived financial loss risk due to the pandemic is also significant in Model 1 ($b=0.061$, $SE=0.021$, $t=2.878$, $p<0.01$). Hence, both H1 and H2 are supported. Model 2 examined the mediating effect of preventive behavior on the relationship between fear of contracting COVID-19 and impulse buying. The fear of contracting COVID-19 increased impulse buying ($b=0.352$, $SE=0.042$, $t=8.390$, $p<0.01$), while preventive behavior exerted a significant and negative impact on impulse buying ($b=-0.152$, $SE=0.045$, $t=-3.350$, $p<0.01$), indicating that respondents with higher levels of preventive behavior engage in significantly less impulse buying. Therefore, the results support hypotheses 3 and 4.

Furthermore, the interaction of preventive behavior and the perceived risk of financial loss from COVID-19 was positively associated with impulse buying ($b=0.084$, $SE=0.031$, $t=2.693$, $p<0.01$), supporting hypothesis 5. This indicates that the negative correlation between preventive behavior and impulse buying becomes less pronounced when the perceived risk of financial loss from the pandemic is high.

In terms of the control variables, Model 2 shows that age significantly influences impulse buying behavior in a negative way in Model 2 ($b=-0.247$, $SE=0.035$, $t=-7.091$, $p<0.01$), while income has a negative impact on impulse buying behavior in both Model 1 ($b=-0.050$, $SE=0.062$, $t=-0.813$, $p<0.05$) and Model 2 ($b=-0.289$, $SE=0.074$, $t=-3.903$, $p<0.01$). Gender, on the other hand, does not significantly influence impulse buying behavior in either model.

Overall, the results suggest that the fear of contracting COVID-19 and the perceived risk of financial loss from COVID-19 have a positive effect on impulse buying behavior, and when these factors are combined, their impact may be even stronger.

Table 4. Regression results

		Model 1 (DV: Preventive behavior)			Model 2 (DV: Impulse buying)		
		B	SE	T-value	B	SE	T-value
Constant		-0.029	0.091	-0.318	4.170**	0.110	37.960
Independent var.	Fear of COVID-19 infection (a)	0.217**	0.034	6.379	0.352**	0.042	8.390
	Perceived risk of financial loss from COVID-19 (b)	0.171**	0.035	4.895	0.192**	0.043	4.498
Mediator	Preventive behavior (c)				-0.152**	0.045	-3.350
Interaction	(a)X(b)	0.061**	0.021	2.878			
	(b)X(c)				0.084**	0.031	2.693
Control var.	Age	0.042	0.029	1.437	-0.247**	0.035	-7.091
	Gender	0.103	0.075	1.375	0.150	0.090	1.670
	Income	-0.050	0.062	-0.813	-0.289**	0.074	-3.903
F-value		F(6,707)=21.37			F(7,706)=34.51		
R-squared		0.154			0.255		

(** p< 0.01, * p< 0.05)

Overall, a summary of the regression results is presented in Figure 1.

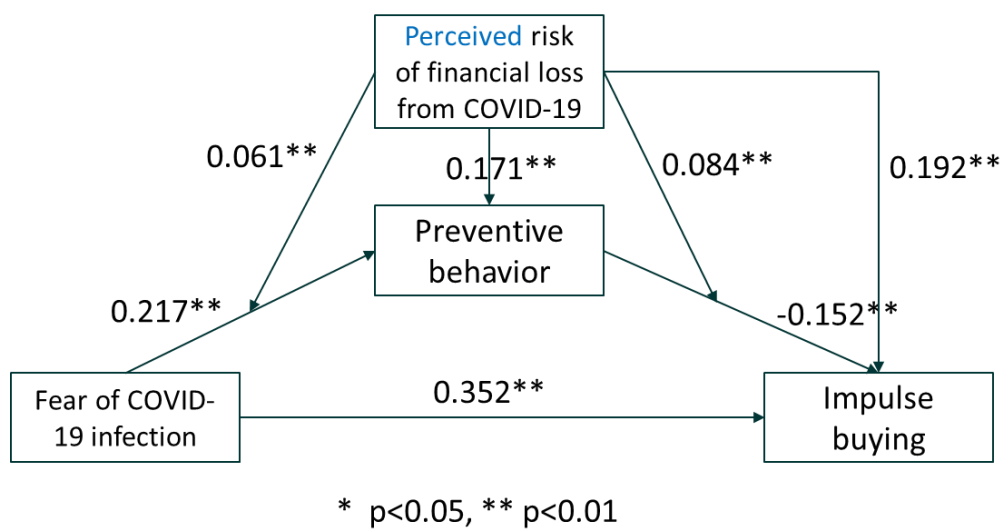


Fig 1. Regression results

5. Discussion

The outbreak of COVID-19 has led to numerous changes in people's daily routines, including their purchasing behavior. The aim of this study was to investigate the relationship among fear of contracting COVID-19, perceived risk of financial loss from COVID-19, preventive behavior, and impulse buying. The findings suggest that both the fear of COVID-19 infection and the perceived risk of financial loss due to the pandemic tend to practice preventive behavior, and the interaction also significantly influences preventive behavior. This aligns with previous research, such as studies by Harper et al.⁶²⁾ and Rhodes et al.¹¹⁾, which found that individuals are more inclined to adopt preventive measures in response to perceived health risks. Moreover, concerning the perceived risk of financial loss, our findings are consistent with previous studies, including Nisa et al.⁶³⁾, which found that perceived economic risk is strongly associated with support for COVID-19 preventive measures.

Overall, these findings suggest that individuals who feel more threatened by the coronavirus are more inclined to adopt preventive measures.

Additionally, the study discovered that the fear of contracting COVID-19 results in an increase in impulse buying behavior, while preventive behavior exerts a negative impact on impulse buying behavior. These findings indicate that preventive behavior can play a role in reducing impulse buying behavior. Previous research has largely supported the relationship between the fear of contracting COVID-19 and impulse buying. For example, Naeem³⁶⁾ reported a rise in panic and impulsive buying behavior due to COVID-19-related fears, such as fear of illness or scarcity of products. Similarly, Gupta et al.³⁷⁾ found that COVID-19 influenced consumer behavioral patterns, leading to stockpiling and impulsive buying behavior. Our study builds upon the concept of mood maintenance theory³⁹⁾, illustrating how individuals distract themselves from negative emotions induced by COVID-19 by engaging in uplifting activities.

Furthermore, the findings indicated that the negative relationship between preventive behavior and impulse purchase weakens when there is a high perceived risk of financial loss due to COVID-19. This extends the findings of Addo et al.⁶⁾, who confirmed that personal emotions like anxiety and stress can lead to impulsive buying behavior. Studies by Ruengorn et al.⁶⁴⁾, Witteven & Velthorst⁵³⁾, and Wilson et al.⁵¹⁾ have highlighted how the economic burden of the pandemic increases depression and anxiety, contributing to impulsive buying behavior as individuals seek to regain a sense of control in the face of fear and uncertainty surrounding COVID-19. Additionally, panic buying and stockpiling of essential items, as discussed by Baker et al.⁶⁵⁾, further explain these behaviors. This suggests that individuals may struggle to exercise self-control over impulse buying when they perceive a heightened financial risk associated with the pandemic, despite their efforts to engage in preventive behavior.

5.1. Theoretical Implications

The study's theoretical implications highlight several significant findings. First, fear of contracting COVID-19 and risk of financial loss from the pandemic significantly influence both preventive behavior and impulse buying behavior. This finding aligns with prior research, which has established that individuals' response to COVID-19 is driven by their perceived risk of infection and financial loss. The results also support the notion that the pandemic has affected not only public health but also economic activity and consumer behavior worldwide.

Second, preventive behavior has a significant negative relationship with impulse buying behavior. This finding implies that individuals who take more preventive behaviors against COVID-19 are less likely to make impulse purchases. The

existing literature on consumer behavior also indicates that people who take more preventive measures are more likely to practice responsible consumption.

Third, the interaction between fear of contracting COVID-19 and the risk of financial loss from the pandemic has a positive relationship with impulse buying behavior. This finding suggests that the fear of contracting COVID-19 combined with the risk of financial loss may encourage individuals to partake in increased impulsive purchasing behavior. This result is consistent with the literature on stress and coping, which suggests that individuals might resort to impulsive behaviors as a way to coping with stress and anxiety.

5.2. Practical Implications

The outcomes of this study have some practical implications for marketers and public health professionals. First, our results suggest that public health campaigns aimed at promoting preventive behavior against COVID-19 could indirectly reduce consumers' impulse buying behavior. Specifically, our results suggest that increased fear of contracting COVID-19 and the risk of experiencing financial loss from the pandemic may lead to increased preventive behavior, which in turn reduces impulse buying. Therefore, public health campaigns could highlight the potential financial benefits of preventive behavior, such as reduced medical bills and expenses associated with COVID-19 infection, to encourage individuals to engage in such behavior. Government and public health organizations should prioritize the dissemination of information on preventive behaviors and the benefits of such behaviors in order to encourage individuals to engage in them. This could be done through various mediums such as social media, television, radio, and other forms of mass communication.

Second, our findings suggest that marketers should consider the influence of precautionary actions on impulsive purchasing behavior amid the pandemic. Marketers could highlight the importance of preventive behavior in their messaging and promote products or services that are aligned with preventive behavior, such as personal protective equipment, cleaning supplies, and healthy food options. Furthermore, our results suggest that marketers should consider targeting individuals who are more fearful of COVID-19 infection or perceive a higher risk of financial loss from the pandemic, as these individuals may be more receptive to marketing messages that promote preventive behavior.

Finally, our findings also suggest that public health campaigns and marketers should consider the interaction effect between fear of contracting COVID-19 and the risk of financial loss from the pandemic on impulse buying behavior. Specifically, our results suggest that individuals who experience both significant levels of fear regarding COVID-19 infection and a substantial perceived risk of financial loss may be particularly susceptible to impulse buying behavior. Therefore, public health campaigns and marketers should develop targeted messaging that addresses the unique needs and concerns of this population. Furthermore, this result suggests that companies in the retail industry should focus on providing a safe shopping environment and encouraging the adoption of preventive measures like maintaining social distancing. This would not only help diminish the transmission of the virus but also would serve to reduce stress and uncertainty among shoppers, which in turn can reduce impulse buying.

5.3. Limitations and Future Research

Despite the insightful findings that have emerged from this study, it is crucial to acknowledge its limitations, as they may affect the generalizability of the results. A key limitation is that the use of self-reporting in the in-person survey might have introduced social desirability bias, which could have impacted the responses provided by participants. Future studies

could utilize more objective measures, such as observational studies or experiments, to obtain a more accurate evaluation of the relationship.

The research also has a limitation in that it did not take into account other factors that could affect impulse buying behavior, such as individual differences in personality traits or socioeconomic status. Considering these variables in future studies could help to uncover potential moderating effects and provide a more comprehensive understanding of the link between consumer perceptions of COVID-19 and impulse buying behavior.

Furthermore, this research focused only on the immediate impact of the pandemic on impulsive buying behavior. In light of the existing pandemic, taking into account the possible enduring effects of the pandemic on impulsive purchasing behavior is crucial. Future studies could examine the effects of COVID-19 on impulse buying behavior over an extended period to determine whether these effects are enduring or transitory.

Another limitation is that it employed a cross-sectional design, which restricts the capacity to establish causality among the variables under investigation. Future works could utilize a longitudinal design to provide a more robust examination of the relationship among COVID-19, preventive behaviors, and impulse buying behavior over time.

Finally, this study solely focused on investigating the influence of preventive behavior on impulsive purchasing during the pandemic. However, preventive behavior may have other consequences beyond its effect on impulse buying. Future research could explore the broader impact of preventive behavior on diverse facets of consumer behavior and well-being amid the pandemic or other similar crises.

6. Conclusion

The objective of this research is to examine how the fear of contracting COVID-19, the potential for financial loss due to the pandemic, and impulse buying behavior are interconnected. The study also considered the mediating role of preventive behavior in this relationship. The study findings indicate that preventive behavior plays a pivotal role in the relationship between the fear of contracting COVID-19 and impulse buying behavior. Therefore, businesses and policymakers should focus on promoting preventive behavior to reduce impulsive purchasing behavior amid the pandemic. Marketers could emphasize the significance of preventive behavior in their messaging and promote products or services that align with preventive behavior, such as personal protective equipment, cleaning supplies, and healthy food options. The results further suggest that marketers should target individuals who are more fearful of COVID-19 infection or perceive a higher risk of financial loss from the pandemic, as they may be more receptive to marketing messages that promote preventive behavior. Moreover, companies in the retail industry should prioritize providing a safe shopping environment and encouraging protective actions like maintaining social distance. These actions would not only help diminish the transmission of the virus but also alleviate stress and uncertainty among shoppers, leading to a decrease in impulse buying behavior.

Acknowledgements

This study was supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2022S1A5A2A030531601131482092640101).

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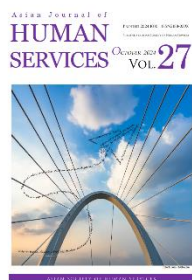
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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

Encouraging Electric Vehicle Adoption Post COVID-19 Pandemic

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ABSTRACT

Electric vehicles adoption in Malaysia is still in its infancy, and there are still relatively few electric automobiles on the road in Malaysia. There is a lack of knowledge and information among Malaysia's transportation policymakers together with the automakers and marketers in the country. There is a relatively limited and insufficient amount of information that is publicly disclosed about how effectively electric automobiles are accepted and adopted from the views of Malaysian customers. The objective of this study is to determine key factors that influence the willingness to adopt electric vehicles among Malaysians post COVID-19 pandemic. In this study, snowball sampling was employed to gather 200 responses from the central regions of Malaysia. Consent was obtained and filter question "Are you using electric vehicles currently?" were asked before the respondents were invited to participate in this questionnaire. Snowball sampling was used in identifying respondents before respondents were approached face-to-face from March 2022 to September 2022. Descriptive and inferential statistics are used to analyze the 200 data. Range anxiety, charging infrastructure, purchase cost, environmental concern positively influences the willingness to adopt electric vehicles while social influence is not. Purchase cost has the strongest influence on willingness to adopt electric vehicles as compared with range anxiety and charging infrastructure. Malaysia is still at its infant stage of adopting and marketing for electric vehicles. This study examines key factors affecting consumers' adoption of electric vehicles.

Keywords: Electric vehicles adoption, charging infrastructure, purchase cost, environmental concern

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Received: 2023/11/06 ; *Revised:* 2024/06/21 ; *Accepted:* 2024/06/26 ; *Published:* 2024/10/30



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1. Introduction

Electric vehicles are a huge technological advance that have the best noticeable sustainable answers to improve fuel efficiency²⁾. According to Austmann and Vigne ²⁾, electric vehicles have been recognized to be part of the most hopeful tactics and strategies in the automobiles industry. Electric vehicles are proven to increase fuel efficiency by 40-60% compared to conventional vehicles¹²⁾. Global registrations of electric vehicles grew from 6,000 in 2010 to 750,000 and 150 million plug-in consumer light duty autos are projected to be in circulation by 2030⁶⁾.

Malaysia has the third highest percentage of automotive ownership in the world, with almost 93% of the Malaysia's total population having at least one single vehicle and 54 % of them owning many vehicles¹⁾. Malaysian government identified the significance and advantages of trying to adopt electric vehicles. On Malaysian roadways, they aim to see a 15% increase in the number of electric vehicles by the year 2030 at the latest¹⁾. By the year 2025, Malaysia planned to have built a total of 10,000 units of charging facilities, with a goal of constructing 9,000 alternating current units and 1,000 direct current units and the country has taken steps and made efforts to encourage the usage of electric vehicles⁵⁾.

Electric vehicles adoption in Malaysia is still in its infancy, and there are still relatively few electric automobiles on the road post COVID-19 pandemic compared to more conventional automobiles. Based on the Malaysian Automotive Association, the total number of electric vehicles sold in Malaysia amounted to just 2.2% of the total number of units delivered by automakers, which was 604,287 units¹²⁾. A significant lack of public charging infrastructure in urban and suburban areas, high cost of electric vehicles, disrupted supply chain is among key barriers of electric vehicles adoption in Malaysia post COVID-19 pandemic¹²⁾.

The benefits provided by electric vehicles are not adequate to convince and persuade people to accept it as a mode of transportation. Customers' thoughts and opinions regarding electric vehicles play an important role in determining the extent to which they are accepted to adopt, which is one reason why electric car adoption rates are so low ⁵⁾. As a result, it is of the utmost importance to have a deeper understanding of the factors that are likely to impact a consumer's choice to acquire electric vehicles⁶⁾.

There is a lack of knowledge and information among Malaysia's transportation policymakers together with the automakers and marketers in the country. There is a relatively limited and insufficient amount of information that is publicly disclosed about how effectively electric automobiles are accepted and adopted from the views of Malaysian customers¹²⁾. Ecer³⁾ argue that marketers still lack appropriate tools and methods for measuring eco-friendly performance metrics, evaluating consumers' environmental perspectives, buying intention, and sustainable marketing behavior. This is even though eco-friendly marketing strategies and efforts are growing. Few vehicle manufacturers produced them in Malaysia due to a lack of information and knowledge. Companies, local, and international marketers struggled to create effective marketing strategies to accomplish those goals due to a lack of information about the country's eco-friendly adoption level and user behaviour towards eco-friendly vehicles and automobiles⁴⁾. Thus, understanding the factors that may impact an electric vehicle purchase is essential.

The objective of this study is to determine key factors that influence the willingness to adopt electric vehicles among Malaysians post COVID-19 pandemic. The research is essential to be conducted to put one's finger on the determinants that influence the adoption of electric vehicles. The findings of these studies can be helpful and supplementary data to determine the sententious determinants so that an appropriate blueprint can be formulated or established to support the government and marketers in encouraging the consumers to employ and adopt the electric vehicles post COVID-19

pandemic. Apart from that, the results would provide better understanding and valuable information for the government, marketers as they can find this information as their reference material to know about the concern and security issues when using electric vehicles. In the context of customers, this research may help them to enhance their knowledge of what determinants will affect the adoption of electric vehicles.

2. Literature Review

2.1. Willingness to Adopt Electric Vehicles

According to a previous study conducted by Jain, Bhaskar, and Jain, the higher purchase price of electric vehicles compared to conventional vehicles is a significant obstacle to the sales of electric vehicles. However, the research done by Krishna⁷⁾ concluded that the relatively low cost of gasoline is an influential determinant that helps to promote the sales of electric vehicles. This is even though the high buying cost of electric vehicles is a barrier to their widespread use⁸⁾. People who prioritize saving money on their energy bills are more likely and willing to adopt electric vehicles as their transport⁹⁾. Drivers will experience embarrassment if the performance and capabilities of their electric vehicles are poor, such as a short driving range. As a result, Franzò, Nasca, and Chiesa⁴⁾ discovered a positive relationship between willingness to adopt electric vehicles and environmental awareness and driving range. The adoption of electric vehicles in Malaysia could be influenced by several factors, including the country's charging infrastructure, the price of vehicles and others relevant determinant. The idea from the perspectives of environmental consciousness and self-perceived social influence will be examined.

2.2. Range Anxiety

The primary factor that influences whether they will purchase an electric vehicle is the customer's worry about the battery dying³⁾. The ideal driving range, as perceived by customers, is somewhere between 300 and 450 kilometers⁸⁾. In practice, this isn't always possible for electric vehicles, and this could lead to range anxiety when the car driver has been behind the wheel for a long time, the battery charge is starting to run down, and the driver has no great suggestion on how far they can drive on the remaining power. Because of their limited and unreliable range, drivers were reluctant to use electric vehicles for long journeys⁹⁾. Range anxiety would therefore reduce the electric vehicles' adoption. Furthermore, according to Gallo and Marinelli⁵⁾, the variable charging time, range, and battery difficulties were the determinants that hindered some of the potential target customers from using electric vehicles. Although battery pack and electric vehicle technology is advancing and ranges are extending, electric vehicle buyers remain worried about their ability to go long distances between charges⁹⁾. Inadequate technological infrastructure like charging points may have a direct negative impact on the adoption of electric vehicles since consumers may perceive risks⁹⁾. Therefore, the following hypothesis is formed and tested in this study:

H1: There is a significant relationship between range anxiety and willingness to adopt electric vehicles.

2.3. Charging Infrastructure

The charging infrastructure is crucial to the long-distance use of electric vehicles. Inadequate charging infrastructure is a major barrier to long-distance driving. Based on the studies conducted by Moon, Park, and Woo¹⁰⁾ and Mukherjee and Ryan¹¹⁾, if consumers know they can charge their electric vehicles quickly and easily, they are more likely to buy one.

Typically, charging stations will be set up in the following places: in the parking lots of homes and businesses, in public spaces, and at gas stations along major highways⁸⁾. When purchasing an electric vehicle, the shop may take the responsibility to provide free installation of charging points in residential homes. As a result, consumers may experience increased anxiety on long-distance journeys and business trips including car travel⁸⁾. Customers' propensity to buy electric vehicles can be influenced favorably by the quality of the charging infrastructure that is currently in place¹⁰⁾. Therefore, the following hypothesis is formed and tested in this study:

H2: There is a significant relationship between charging infrastructure and willingness to adopt electric vehicles.

2.4. Purchase Cost

In a consumer choice of electric vehicles, financial constraints are present¹²⁾. Consumers are on a limited budget, so weighing the costs and benefits of a purchase is essential⁴⁾. This is especially true in the electric vehicles industry as it is, where prices are significantly higher than for conventional automobiles⁴⁾. If consumers do not have a significant enough budget, they can feel pressured and then opt to purchase traditional vehicles. Electric vehicle prices are higher than gas-powered car prices mostly because of the high cost of the battery pack, but also due to a lack of economies of scale in particular countries¹¹⁾. High price of electric vehicles compared to traditional vehicles is a major obstacle to their sales¹⁰⁾. Therefore, the following hypothesis is formed and tested in this study:

H3: There is a significant relationship between purchase cost and willingness to adopt electric vehicles.

2.5. Environmental Concern

According to Moon, Park, and Woo¹⁰⁾ and Mukherjee and Ryan¹¹⁾, the level of environmental awareness or belief held by consumers is a potential element that can influence their buying decision of environmentally friendly products.

Environmental concerns are exacerbated by the transportation sector but can be mitigated thanks to eco-innovations like electric automobiles⁵⁾. Previous studies also pinpointed the impact of environmental concerns, with electric car adopters mentioning environmental concerns as a prime reason in their vehicle selection⁸⁾. Therefore, the following hypothesis is formed and tested in this study:

H4: There is a significant relationship between environmental concern and willingness to adopt electric vehicles.

2.6. Social Influence

Social influence refers to the effect that the opinions of one's peers or society have on an individual's choice to make use of a newly developed product or piece of technology¹²⁾. Therefore, social pressure is exerted on an individual or a decision-maker through subjective norms or social influence¹⁾. According to Moon, Park, and Woo¹⁰⁾, the opinions of one's contemporaries can influence one's propensity to purchase an electric vehicle. Mukherjee and Ryan¹¹⁾ acknowledged the role that social influence plays a significant role in the decision-making process prior to the purchase of an electric vehicle³⁾. Social influence is weighed by consumers when making the decision to buy an electric vehicle³⁾. Therefore, the following hypothesis is formed and tested in this study:

H5: There is a significant relationship between social influence and willingness to adopt electric vehicles.

3. Research Methodology

In this study, snowball sampling was employed to gather 200 responses from the central regions of Malaysia. Snowball sampling was used because it is less expensive to identify existing electric vehicles owners who have experience of adopting electric vehicles¹³⁾. Respondents are approached face-to-face from March 2022 to September 2022. Consent was obtained and filter question “Are you using electric vehicles currently?” were asked before the respondents were invited to participate in this questionnaire. Forty questions were asked in the questionnaires with regards to range anxiety, charging infrastructure, purchase cost, environmental concern, social influence, and willingness to adopt electric vehicles, measuring using 5-point Likert scale, ranging from 1-strongly disagree to 5- strongly agree. Two hundred respondents with knowledge and exposure on electric vehicles, from Kuala Lumpur, Selangor, Johor, Negeri Sembilan, Perak and Penang were approached. These states were suitable to conduct this research for electric vehicle adoption because they are the most developed states in Malaysia. The questionnaire was personally administered to respondents at public places. Each respondent was approached face-to-face so that purpose of the research purpose and the content of the questionnaire were clearly explained to the respondents before data collection. A total of 200 target respondents in Malaysia who participated in the survey. One hundred and eight of the respondents are male while 92 are female. Most target respondents are 46 percent female and 54 percent are male. The personal annual gross income of 109 respondents falls below RM 36,000 and 56 respondents belong to the category of RM 36,001 - RM 48,000. Meanwhile, there are 14 respondents’ personal annual gross income is from RM 48,001 - RM 60,000. Among the 200 respondents who participate in this research, 47 respondents have less than 3 years driving experiences, 51 respondents have 3 to 5 years driving experiences and 57 respondents have driving experiences for 6 to 8 years. Likewise, 24 target respondents’ driving experience fall in 9 - 12 years, 9 respondents’ driving experience is between 13 - 15 years and 12 of them have more than 15 years driving experience.

4. Results

The result was analysed by using SPSS (Statistical Package for the Social Sciences) software. Reliability of the questionnaire instrument was confirmed with Cronbach’s Alpha values ranging from 0.73 to 0.95, which were above the threshold value of 0.70, convergent validity was confirmed as the factor loading of questionnaire items were above the threshold value of 0.50¹³⁾.

Multiple regression analysis is used for exploring the influence of five independent variables which are range anxiety, charging infrastructure, purchase cost, environmental concern, social influence on the willingness to adopt electric vehicles among consumers in Malaysia. The result of this multiple linear regression shows t R square is 0.697, indicating 69.7% of willingness to adopt electric vehicles can be explained through the five independent variables: range anxiety, charging infrastructure, purchase cost, environmental concern as well as social influence. Every one unit increase in range anxiety, there is an associated 0.322 unit increase in the willingness to adopt electric vehicles. Every one unit increase in purchase cost, there is an associated 0.605 unit increase in the willingness to adopt electric vehicles. Every one unit increase in charging infrastructure, there is an associated 0.105 unit increase in the willingness to adopt electric vehicles. Every one unit increase in environmental concern, there is an associated 0.146 unit increase in the willingness to adopt electric vehicles.

Multiple regression tests are used for exploring the five variables (range anxiety, charging infrastructure, purchase cost, environmental concern, and social influence) that can be adopted to explain the willingness to adopt electric vehicles among consumers. The strongest predictor for willingness to adopt electric vehicles is purchase cost while the lowest predictor is

social influence. Range anxiety, charging infrastructure, purchase cost as well as environmental concern are important factors affecting willingness to adopt electric vehicles.

Table 1. Multiple Regression Result

Independent Variables	Coefficient	Significance
Constant	-.433	.067
Range anxiety	.322	.000
Charging infrastructure	.105	.017
Purchase cost	.605	.000
Environmental concern	.146	.014
Social Influence	.034	.691

Dependent Variable: Willingness to adopt electric vehicles.

According to Table 2, Hypothesis 1,2,3 and 4 are supported and Hypothesis 5 is not supported.

Table 2. Summary of Hypothesis Testing

Hypothesis	Result
Hypothesis 1: There is a significant relationship between range anxiety and willingness to adopt electric vehicles.	Supported
Hypothesis 2: There is a significant relationship between charging infrastructure and willingness to adopt electric vehicles.	Supported
Hypothesis 3: There is a significant relationship between purchase cost and willingness to adopt electric vehicles.	Supported
Hypothesis 4: There is a significant relationship between environmental concern and willingness to adopt electric vehicles.	Supported
Hypothesis 5: There is a significant relationship between social influence and willingness to adopt electric vehicles.	No Supported

5. Discussion and Implications

The objective of this present study is to determine key factors that influence the willingness to adopt electric vehicles among Malaysians post COVID-19 pandemic. Five variables were examined and their relationship to the willingness to adopt electric vehicles was also tested as well. This objective has been achieved by adopting the multiple regression analysis, which demonstrates that the range anxiety, charging infrastructure, purchase cost, environmental concern has significant relationships on willingness to adopt electric vehicles while social influence is not. The findings also demonstrate that purchase cost has the strongest effects on willingness to adopt electric vehicles as compared with other factors.

The results show that consumers in Malaysia care about the driving range that can be performed by electric vehicles while making a purchase decision. This is due to the reason that some people are still struggling with range anxiety, particularly in regions where the number of electric vehicles on the road is increasing at a faster rate, yet public charging infrastructure may be lagging or is centred in areas such as cities or along highways¹²⁾. In addition, fears about long lines at peak times, equipment that has been vandalized or destroyed, faulty software or hardware, or even the possibility of finding a charging site that is occupied by a gasoline- or diesel-powered vehicle are also the factor than may increase the range anxiety of the user while driving¹²⁾. Thus, in this scenario, the users may have concerns over the driving range of electric vehicles if they are thinking about adopting electric vehicles.

COVID-19 pandemic disrupts the supply chain of electric vehicles worldwide and accentuates the importance of supply chain analytics to alleviate the range anxiety of the electric vehicle adoption¹⁾. Electric vehicle companies need to enhance the resilience and transparency of the electric vehicle equipment, facility, hardware, and software supply through effective supply chain analytics post COVID-19 pandemic,

The result shows a significant relationship between charging infrastructure and the willingness to adopt electric vehicles. Long-distance driving in an electric vehicle is now unachievable due to the limited range currently available in these vehicles⁸⁾. It is essential to develop more charging infrastructure in either urban or suburban. In recent years, the government of Malaysia has undertaken an active campaign to encourage the public of Malaysia to adopt electric vehicles¹²⁾. In addition to that, it provides a substantial amount of help to companies who manufacture electric vehicles. In addition, with the support of the government, it is possible to effectively establish a sizable quantity of charging equipment in strategic locations. This indicates that the government is starting to encourage the producers of electric vehicles in their efforts to develop more charging infrastructure.

Reduced car sales emerged as one of critical challenges facing the automotive industry during COVID-19⁸⁾. Building more charging infrastructure in either urban or suburban areas are among the best ways to boost the sales of electric vehicles post COVID-19 pandemic.

Malaysians are willing to pay a higher price for adopting electric vehicles. According to Franzò, Nasca, and Chiesa⁴⁾, the cost of electricity for one hundred kilometres of travel in an electric vehicle is approximately RM 30, which is significantly cheaper than the cost of fuel vehicles. Fuel savings are a key factor in convincing Malaysians to buy electric vehicles¹⁾. The rise in fuel prices may also be a factor that causes buyers to be concerned about the buying price of electric vehicles. Furthermore, as proposed by Austmann and Vigne²⁾, the decision of a consumer to purchase electric vehicles is significantly influenced by fluctuations in the cost of gasoline as it is sold in the marketplace.

The Economic downturn and rise in inflation post COVID-19 pandemic brought about a considerable change in the buying patterns of electric vehicles⁴⁾. Cost leadership is a good strategy to attract customers as more customers are looking

for cost-effective electric vehicles due to reduction in spending power post COVID-19 pandemic.

According to Jain, Bhaskar, and Jain⁶⁾, awareness of environmental issues has been growing, which has motivated them to purchase and adopt electric vehicles as their primary mode of transportation. Consumers in Malaysia purchase electric vehicles because it contributes to less carbon emission and helps to preserve the environment by reducing air pollution.

This study has a unique finding that social influence does not influence willingness to adopt electric vehicles. Buyers in Malaysia may believe that driving a car that considers luxury does not demonstrate their identity as a wealthy person, an intelligent person as others might not notice if an individual drives an electric vehicle because electric vehicles are a product with new technology, and this does not reflect the wealthiness of that person⁵⁾. Consumers will not increase their attention to electric vehicles because of this particular social habit. Electric vehicles are associated with several unique features, such as environment friendly products, fashion, and high technology. Hence, when consumers purchase or adopt electric vehicles, they are less likely to let others influence their decision to purchase an electric vehicle and are more likely to consider other factors first like driving range, features, charging infrastructure³⁾.

6. Conclusion

Range anxiety, charging infrastructure, purchase cost, environmental concern positively influences the willingness to adopt electric vehicles while social influence is not. Purchase cost has the strongest influence on willingness to adopt electric vehicles as compared with range anxiety and charging infrastructure. Malaysia is still at its infant stage of adopting and marketing for electric vehicles. This study examines key factors affecting consumers' adoption of electric vehicles.

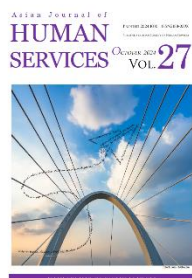
7. Limitation and Direction for Future Research

This study examines key factors affecting consumers' adoption of electric vehicles in Malaysia only. The questionnaire instrument used in this study could be replicated to examine consumers' adoption of electric vehicles in other Asia countries. This study examines key factors affecting electric vehicle adoption using multiple linear regression. Future study could be conducted to further examine the effect of demographics (age, gender, educational background) on electric vehicle adoption in developing countries using different statistical analysis methods.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>
Online ISSN: 2188-059X / Print ISSN: 2186-3350
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ORIGINAL ARTICLE

Verification of the Validity of a Measurement Scale for Menstrual Abnormalities in Young Women and Consideration of Related Factors

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ABSTRACT

[Purpose] To verify a measurement scale for menstrual abnormalities in young women and identify related factors.

[Method] The concept of menstrual abnormalities was analyzed targeting 31 papers from Japan and abroad¹⁾.

A preliminary survey was carried out on 300 respondents. This survey was carried out on 600 persons and testing was carried out a week later. Valid responses were obtained from 300 persons, and a 4-factor, 25-item scale was abstracted. A survey on related factors was carried out on 400 persons, and correlation with eating habits, sleeping habits and physical discomfort were considered.

[Ethical considerations] This study was carried out after obtaining approval from the Ethical Review Committee of Tokyo Women's Medical University (Approval No: 2021-0188).

[Results] 400 women with menstrual abnormalities were targeted for analysis. A 4-factor, 25-item scale according to the analysis results of the confirmation factors could be confirmed. According to the analysis of covariance structures, a strong correlation was observed in goodness-of-fit model for 4 factors and eating habits, sleeping habits, and physical discomfort, at GFI=0.997, AGFI=0.978, CFI=0.999 and RMSEA=0.017.

[Conclusion] Construct validity, criteria and internal consistency of this scale could be confirmed, and the 4-factor, 25-item scale could be validated.

A strong correlation between the 4 factors and eating habits, sleeping habits and physical discomfort was observed.

Keywords: young women, menstrual abnormalities, knowledge, scale, related factors

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Received: 2024/02/28 ; *Revised:* 2024/06/05 ; *Accepted:* 2024/06/26 ; *Published:* 2024/10/30



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1. Introduction

The lifestyle of women in modern Japan has greatly changed over the past 30 years, with the tendency to marry and have children later in life. Consequently, maintaining fertility for a longer length of time after menarche until childbirth is required.

According to Enatsu, frequency of childbirth in modern women who have menarche early is lower, and the risk of endometriosis is significantly higher. Among patients diagnosed with endometriosis, 26.1% had dysmenorrhea in their teenage years. However, most women with dysmenorrhea do not visit a medical facility. Since many symptomatic women do not visit a medical facility at the right time, treatment often begins when the disease is in the advanced stage²⁾.

In Egypt, most respondents (84.01%) reported feeling pain in the abdomen and back. Most students (91.2%) did not seek medical consultation for dysmenorrhea³⁾. This cross-sectional examination of a young multiethnic population of Canadian women shows that 99% of women experience some type of premenstrual symptom⁴⁾. In Hong Kong, the prevalence of dysmenorrhea was 80% (95% confidence interval, 75-85%)⁵⁾.

Furthermore, according to Miyazaki, the most frequent responses regarding matters not taught in menstruation education were "lifestyle during menstruation," "menstruation record" and "menstrual disorder"⁶⁾.

According to the above, insufficient education regarding menstrual disorders is considered to be related to the frequency of visits to a medical facility.

According to the results of the multilinear regression analysis of the previous survey, when a self-care scale for young women with menstrual pain was prepared, young women with stronger menstrual pain were found to not properly care for themselves and their symptoms did not improve by self-care⁷⁾.

If there is a scale that can check the knowledge of menstrual abnormalities, it will lead to early detection of menstrual abnormalities. Therefore, we developed a scale to measure knowledge about menstrual abnormalities among young women.

Messick, et al. determined that validity is a comprehensive judgment on the degree to which the empirical and theoretical evidence support the appropriateness and adequacy of the reasoning and action based on the other evaluation methods such as tests or interviews⁸⁾. According to Landy, et al. stated that the concept of validity consists of content validity, criterion-related validity, and construct validity. In addition, for assessment of scale validity, the reliability of the reasonings of the subject, on which the scores of the scale are based, is important⁹⁾. Content validity must consist of items that are a good representation of behavior, and their contents are determined by experts, representatives of subjects, etc. Criterion-related validity includes both concurrent validity and prediction validity. Concurrent validity simultaneously employs new and existing criteria for the subjects in order to identify any correlations. Prediction validity predicts and considers the future. Regarding construct validity, Cronbach, et al. states that I. all the theories which are assumed to be related to the constitutive concepts are clearly documented, and correlations between theories are identified, II. criteria to measure those theories are developed, and III. measurements are carried out using such criteria to verify whether the theory (hypothesis) is valid or not¹⁰⁾.

Thirty-one articles published in Japan and internationally were targeted and repeated consideration of the conceptual analysis of menstrual disorders was carried out by the author and two maternity nursing professors. Next, content validity was considered at a meeting of experts (two maternity nursing professors, a medical school instructor and a statistics expert).

Preliminary survey on 300 young women (18–29-year-old) with menstrual disorders, were carried out. Scale items were then adjusted and 5 factors and 47-item draft scale was prepared.

This survey was carried out on 600 young women with menstrual disorders (18–29-years-old). For criterion-related validity, 41 items based on the Menstrual Distress Questionnaire (hereinafter referred to as MDQ, consisting of 47 items in 8 areas)¹¹⁾, were used as a modified MDQ, excluding item 6, “feeling exhilarated” because it did not apply to menstrual disorders. Correlation according to Spearman's rank correlation coefficient was considered, and a positive correlation was observed overall. To determine discriminant validity, 600 patients were divided into one group of 203 persons who experience strong menstrual pain and always use analgesics, and another group of 367 persons who do not always need analgesics. From the results of the unpaired t-test, the analgesic had significantly higher average value and standard deviation for each subscale, compared to the non-analgesic group. Young women with strong menstrual disorders were found to have higher knowledge of menstrual disorders.

For construct validity, 4 factors and 25 items were abstracted as a result of exploratory factor analysis and confirmation factor analysis .

Therefore, construct validity will not be verified unless further survey is conducted with a different population, and 4-factor, 25-item scale was abstracted using the developed scale.

Consequently, the purpose of this study is to verify the validity of the construct validity of a knowledge measurement scale for menstrual abnormalities in young women and consider related factors.

2. Definition of terms

Young women: Women from the average age of menarche (11-12 years) to approx. 7 years of anovulatory cycles, and from the age of 18, when the ovulatory cycle begins, to 29 years of age, before the average age of childbearing.

3. Method

3.1. Survey subjects

Women 18-29 years old with menstrual disorders and persons who do not meet any of the exclusion criteria (pregnant, taking birth control pills, visiting the hospital for gynecological disease).

3.2. Survey method

An online survey was carried out on a different population, consigned to a different research company than the one that carried out the preliminary survey and main survey. First, confirmation whether the person had a menstrual disorder or if she met any of the exclusion criteria was carried out by a screening survey, and the related factors questionnaire was sent to eligible persons.

3.3. Survey period

October 2022.

3.4. Composition of questions

In order to determine any correlation between the 25 items of this survey result and the revised MDQ 41 items, 22 items of related factors such as age at menarche, menstrual cycle, degree of menstrual pain, BMI, eating habits, sleeping habits, physical discomfort were surveyed.

3.5. Item analysis

The ceiling/floor effect was calculated from the mean and standard deviation, and IT correlation analysis and GP analysis were carried out.

3.6. Confirmation of validity

Regarding construct validity, confirmation factor analysis was carried out to confirm whether the 4 factors and 25 items were the same as those of the main survey. Regarding criteria-related relevance, correlation with the modified MDQ was considered by Spearman's rank correlation coefficient.

3.7. Confirmation of Reliability

Oshio stated that if the alpha coefficient is above a certain number (e.g., .80), the internal consistency of the scale is considered high¹²⁾. Therefore, for the internal consistency of the scale, Cronbach's coefficient alpha of entire scale and subscales was calculated, with the standard set at 0.8 or higher.

3.8. Multiple linear regression analysis

Correlation between the First-Fourth Factors of knowledge measurement scale for menstrual abnormalities in young women and eating habits, sleeping habits, physical discomfort was considered.

3.9. Covariance structure analysis

Covariance structure analysis was carried out to consider the degree of correlation between the First to Fourth Factors and eating habits, sleeping habits, physical discomfort. In addition, standardized residual variance was carried out.

According to Oshio, the closer the fit index is to the Good of Fit Index (hereinafter referred to as GFI):1 the better. Adjusted Goodness of Fit Index (AGFI): closer to 1 the better, GFI and AGFI are also considered good-fitting models if they are greater than 0.90, $GFI \geq AGFI$.

Normal Fit Index (NFI), Comparative Fit Index (CFI): The closer to 1, the more favorable the model, and greater than 0.90 is considered a good model.

Root Mean Square Error of Approximation (RMSEA): good correspondence is less than 0.05, greater than 0.1 is determined as poor correspondence¹²⁾.

SPSS Statistics 27 and Amos 27 were used for data statistical analysis.

4. Ethical consideration

For the online survey, an explanation screen and a consent screen were prepared, and only persons who gave consent were able to go to the question screen. All data was set to be anonymous. An agreement was concluded so that all data, including data held by the research company would be promptly deleted after completion of the study. This study was carried out after obtaining approval from the Ethical Review Committee of Tokyo Women's Medical University (Approval No: 2021-0188).

5.Results

5.1. Selection of Subjects

The screening survey was sent to 17,091 persons, and 1406 persons replied. Among these, 662 persons with a menstrual disorder were targeted. Of these, 510 persons who did not meet the exclusion criteria (pregnant, taking birth control pills, regularly visiting the hospital for a gynecological disease) responded, of which valid responses could be obtained from 400 persons.

5.2. Subject Summary (Refer to Table 1)

Regarding age the 400 subjects, 23 persons were 18-19 years old (5.8%), 126 were 20-24 years old (31.5%), and 251 were 25-29 years old (62.7%).

Occupations in descending order were, 140 company employees (35.0%), 81 students (20.3%), 64 part-time workers (16.0%), 46 unemployed (11.5%), and 39 housewives (9.7%).

Regarding BMI, BMI of 138 persons (34.5%) was 18.5 or less, 225 persons more than 18.5 but less than 25 (56.3%), and 37 persons 25 or more (9.3%). 251 persons had a BMI of 19 or less (62.8%). 36 persons had an appropriate BMI of 22 (9.0%).

Table 1. Overview of subjects

Item	Result
Age	
18~19years old	23(5.8%)
20~24years old	126(31.5%)
25~29years old	251(62.7%)
Profession	
Office worker	140(35.0%)
Student	81(20.2%)
Part-time job	64(16.0%)
Unemployed	46(11.5%)
Housewife	39(9.7%)
Civil servant	17(4.2%)
Company manager	6(1.5%)
Self-employed	6(1.5%)
Others	4(1.0%)
Body Mass Index (BMI)	
18.5 or less	138(35.0%)
18.5 to less than 25	225(56.3%)
25 or more	37(9.3%)
n=400	

BMI
19 or less
251 (62.8%)

5.3. Item analysis

Of the 25 items, no item was excluded by the floor/ceiling effect.

In addition, no item was excluded due IT correlation analysis or GP analysis.

5.4. Confirmation of Validity

Regarding construct validity, the goodness-of-fit model was GFI=.794, AGFI=.745, NFI=.856, CFI=.887, and RMSEA=.087.

The 4 factors and 25 items could be confirmed by factor analysis.

Regarding criterion-related validity, a significant positive correlation was observed in the modified version MDQ and for all items.

In particular, for the Second Factor (Relationship between menstrual pain and analgesics), a clear correlation was observed with the modified MDQ First Factor “menstrual pain,” $r=.47$ ($p<.001$), and modified MDQ Fourth Factor “Autonomic Dysregulation Symptoms,” $r=.49$ ($p<.001$) (refer to Table 2).

Table 2. Screening scale for menstrual abnormalities in young females and correlation with the modified MDQ

	Modified MDQ Factor 1	Modified MDQ Factor 2	Modified MDQ Factor 3	Modified MDQ Factor 4	Modified MDQ Factor 5	Modified MDQ Factor 6	Modified MDQ Factor 7
First factor	.277**	.308**	.170**	.280**	.236**	.180**	.360**
Second Factor	.477**	.403**	.299**	.490**	.320**	.378**	.387**
Third factor	.354**	.362**	.320**	.297**	.283**	.258**	.352**
Fourth Factor	.317**	.258**	.311**	.227**	.283**	.318**	.223**

** Correlations are significant (two-tailed) at the 1% level.

n=400

5.5. Confirmation of Reliability

Cronbach's alpha for the entire scale was .924.

Regarding the subscale of Cronbach's alpha, First Factor was $\alpha=.927$, Second Factor $\alpha=.846$, Third Factor $\alpha=.902$, and Fourth Factor $\alpha=.891$.

All factors exceeded the standard deviation of .8, confirming internal consistency.

5.6. Linear regression analysis in First-Fourth Factors with eating habits, sleeping habits, physical discomfort (refer to Table 3)

First Factor (Risk of menstrual disorder) correlated with sleeping habits ($B=.382$, $SE=.105$, $p<.01$) and physical discomfort ($B=.121$, $SE=.055$, $p<.05$). Adjusted R2 was 0.076.

Second Factor (Related to menstrual disorder) correlated with eating habits ($B=.261$, $SE=.077$, $p<.01$) and physical discomfort ($B=.284$, $SE=.052$, $p<.01$). Adjusted R2 was 0.161.

Third Factor (QOL in the peri-menstrual period) correlated with sleeping habits ($B=.393$, $SE=.113$, $p<.01$) and physical discomfort ($B=.161$, $SE=.060$, $p<.01$). Adjusted R2 was 0.079.

Fourth Factor (Benefit of birth control pills) correlated with sleeping habits ($B=.354$, $SE=.122$, $p<.01$) and physical

discomfort ($B=.205$, $SE=.064$, $p<.01$). Adjusted R^2 was 0.063.

Table 3. Regression analysis between Factors 1-4 and eating habits, sleeping habits, and physical discomfort
(multiple regression analysis: stepwise) n=400

Dependent variable	Independent variable	B	SE	p-value
First factor	Sleeping habits	0.382	0.105	0.000
	Physical condition	0.121	0.055	0.030
	AR ²		0.076	
Second factor	Eating habit	0.261	0.077	0.001
	Physical condition	0.284	0.052	0.000
	AR ²		0.161	
Third factor	Sleeping habits	0.393	0.113	0.001
	Physical condition	0.161	0.060	0.007
	AR ²		0.079	
Fourth factor	Sleeping habits	0.354	0.122	0.004
	Physical condition	0.205	0.064	0.001
	AR ²		0.063	

B,Regression coefficients; SE,Standard error;

AR²,Adjusted R-squared;

5.7. Covariance structure analysis between First-Fourth Factors and eating habits, sleeping habits and physical discomfort (refer to Figure 1)

From the covariance structure analysis results, eating habits correlated with the Second Factor, sleeping habits with the First, Third, and Fourth Factors, and physical discomfort with the First-Fourth Factors. In the goodness-of-fit model, an extremely strong correlation was observed at $GFI=.997$, $AGFI=.978$, $CFI=.999$ and $RMSEA=.017$.

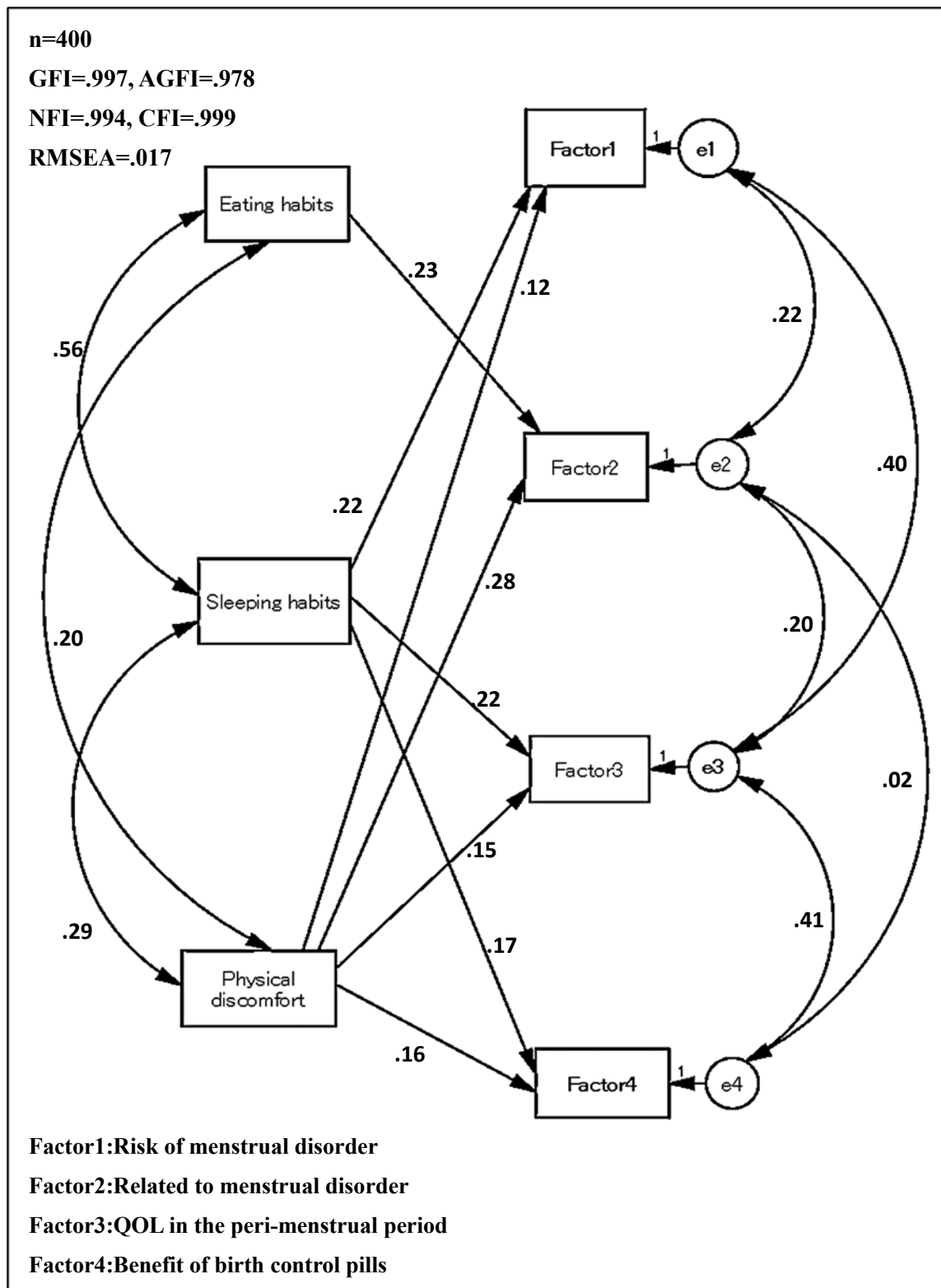


Figure1. Covariance structure analysis between Factor1-4 and eating habits, sleeping habits, and physical discomfort

6. Discussion

6.1. Consideration of Scale Validity

For content validity, a conceptual analysis of 31 articles on menstrual disorders in Japan and overseas was carried out using the Rogers method. Furthermore, two maternity nursing professors, a medical school instructor and a statistics expert considered validity, and understanding menstrual disorders from a more objective viewpoint was possible.

For criterion-related validity, 41 items related to menstrual disorder were used as a revised MDQ, based on the most frequently used a scale of menstruation in the world. Positive correlation was observed for all items. Second Factor (Relationship between menstrual pain and analgesics) is considered to show moderate correlation because MDQ measures symptoms during menstruation, and symptoms of menstrual pain overlapped.

On the other hand, First Factor (Risk of menstrual disorder), Third Factor (QOL in the perimenstrual period), and Fourth Factor (Benefits of birth control pills) showed weak correlation since characteristics of this scale specialized in menstrual disorder.

Regarding construct validity, the 4-factor structure could be confirmed by two surveys, namely this survey and the related factor survey. Since 4 factors and 25 items were obtained from the results both times, construct concept validity is considered confirmed.

6.2. Consideration of Scale Reliability

Cronbach's alpha for the entire scale of the related factor survey was .924. Subscales were, starting from the First Factor, .927, .846, .902, and .891, respectively. All were .85 and above; and internal consistency of this scale is considered high.

6.3. Results of the multiple linear regression analysis and covariance structure analysis

From the results of the multiple linear regression analysis and covariance structure analysis, a strong correlation with eating habits, sleeping habits, and physical discomfort was observed. According to Yuasas, et al, the symptomatic group with menstruation complaints had a lower BMI and significantly less sleep than the non-symptomatic group¹³.

In addition, the symptomatic group had significantly higher awareness of physical symptoms such as cold hands and feet, lethargy and tiredness. Similarly, sleep and physical discomfort are significantly connected to symptoms during menstruation. Yuasas, et al also stated that headache symptoms were significantly observed in the group with menstrual pain, and the group with irregular menstruation had significantly less intake of eggs, meat, fish, vegetables, and milk¹³. In addition, a correlation with five potential factors, namely vitamins and minerals, protein, weight, and sleep, was observed in students with issues regarding menstrual pain and irregular menstruation.

Among 400 persons targeted from the related factor survey (all subjects had menstrual disorder), 138 persons (34.5%) were thin with a BMI of 18.5 or less, and 251 persons (62.8%) who were somewhat thin with a BMI of 19 or less. From these results, menstrual disorder more easily occurred in cases where BMI was 18.5 or less or a value close to that. According to Nodas, et al, a significant correlation between skipping breakfast or dinner, or restricting staple foods and the occurrence of irregular menstruation was observed¹⁴. As expected, eating habits and BMI were closely related with menstrual disorder. According to Nodas, et al, the recent increase in the number of "thin type" young women is related to an awareness that "being thin is healthy and beautiful" -omitted- and within this background, the lack of education regarding

which body shapes are at risk and to what degree is one cause¹⁴⁾.

There is a lack of widespread knowledge about the risks of thinness and menstrual abnormalities.

A strong correlation with all the items of the screening scale for menstrual disorder for young women was observed in persons experiencing physical discomfort. Occurrence of menstrual disorders lead to hormonal imbalance. As a result bodily discomfort more easily occurs. In fact, according to the results of Yuasa's study as well, a significant difference was observed in the items of cold hands and feet, headache, lethargy and easily tired in persons with menstrual pain.

For items in this study related to physical discomfort, a significant difference in cold hands and feet, lethargy, easily tired, and headache was also observed. Along with the results of the Yuasa study, the possibility that menstrual disorder leads to physical discomfort is considered high.

In other words, modern young women stay up late at night, do not get enough sleep, lose weight due to missing meals and a carbohydrate diet. BMI decreases below the standard, and menstrual disorders occur. As this continues, menstrual disorders can be predicted to become the norm, and physical discomfort can be expected.

The fact that young women need to be educated regarding disruptive lifestyle habits such as irregular eating and sleeping, and the connection between severe dieting and menstrual disorders/physical discomfort.

6.4. Possibility of practical use of the scale

This scale was developed to confirm knowledge of young women regarding menstrual disorders, and promote visits to a gynecologist.

Young women who have menstrual disorders can review their own menstruation condition, consider the risk of menstrual disorders, and evaluate their own menstrual pain and how to use analgesics by confirming this scale. Furthermore, this is an opportunity to review QOL before and after menstruation, and learn about the effects of birth control pills. In other words, this scale can be used as an indication for young women to understand menstrual disorders. From this, young women with menstrual disorders will be motivated to visit a gynecologist. If more young women can detect a menstrual disorder on their own and visit a gynecologist at an early stage, progression to more serious gynecological disorders may be prevented. Even if a patient is suffering from an abnormality, visiting a gynecologist can prevent the disease from worsening and treatment can be administered earlier. Consequently, fertility can be maintained for a longer period of time after menarche until first childbirth, which may lead to the prevention of future infertility.

Subjects targeted for this scale are 18- to 29-years-old women, and this scale can be utilized at a health checkup interview at a university or company. First, a screening survey on all persons to consider if they have a menstrual abnormality (menstrual cycle more than 39 days or less than 24 days, menstrual period more than 8 days or less than 2 days, excessive or too little menstrual bleeding, no menstruation for 3 months, first menstruation does not come after turning 18, menstrual pain that interferes with life, premenstrual discomfort, bleeding other than during menstrual period) is carried out, and young women who are 18 to 29 years old who have menstrual disorder are requested to answer questionnaire for this scale. From this, young women can determine whether they have a menstrual abnormality, leading to a visit to a gynecologist.

7. Study limitations and issues

In the process of developing a scale to measure knowledge regarding menstrual disorders by young women, items with bias in the item analysis or factor analysis phase and items with low factor loadings were deleted. Some of these items, were deleted due to poor discrimination, even though they were important. Consequently, it should be emphasized that the 25 items of knowledge measurement scale of menstrual abnormalities in young females should be used while recognizing that all the knowledge regarding menstrual disorder may not be included, but rather that the scale is a tool to measure the knowledge of young women on menstrual disorders.

Regarding future tasks, consideration on how this scale can be effectively utilized, and how to encourage young women with menstrual disorders to visit a gynecologist, are needed.

8. Conclusion

1. According to the result of the confirmation factor analysis of this survey and related factor analysis, a screening scale for menstrual abnormalities in young women with 4 factors and 25 items could be confirmed, and construct validity could be verified.
2. In most cases of young women with menstrual abnormalities have BMI of 19 or less, or a tendency to be somewhat thin.
3. Young women tend to have menstrual abnormalities due to a lack of sleep and worsened eating habit. This connects to physical discomfort such as cold hands and feet, headache, lethargy and tiredness.
4. Reviewing lifestyle habits such as meals and sleep, and maintaining the appropriate body weight are important to prevent menstrual disorders.

Acknowledgements

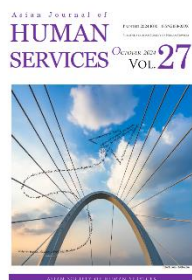
This study adds to and revises the contents presented at the 64nd Academic Conference of the Japan Society of Maternal Health. There is no conflict of interest regarding the contents of this paper.

This study received a Grants-in-Aid for Scientific Research, JP20K19147.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

Practices of Public Health Nurse in Health Management Support Program for Public Assistance Recipients

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ABSTRACT

From January 2021, Ministry of Health, Labour and Welfare has implemented health management support program, a measure that targets public assistance recipients to promote self-support by providing medical care and navigating them to encourage health. This study aims to show public health nurses' practices within the program. We had health nurses from municipalities to participate in the study, who are actively engaged in health management support program. The first author conducted in-depth, semi-structured individual interviews in August 2022, which cover perspectives and experience of the public health nurses. The practices of public health nurse in health management support program for public assistance recipients is divided into the core categories of the followings; [detecting life crises and health issues of the recipient and household], [reconnecting with society and establishing lifestyles that recipients would feel peace with], [assisting every aspect of recipient's life in the perspective of health], [overlooking the local care system and utilizing them to support the recipient], and [turning individual case to regional matter]. The findings from this study not only highlight the importance of health management support program, which is intended to encourage the public assistance recipients to begin adjusting their lifestyles. It emphasizes the necessity of more active involvement that goes beyond preventing lifestyle-related diseases such as assisting the recipient reconnect with the society and providing comprehensive support by accompanying them. The insights help to significantly progress the practices of public health nurses.

Keywords: public assistance, lifestyle-related diseases, health management support program, public health nurse, Japan

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Received: 2024/05/09 ; *Revised:* 2024/09/18 ; *Accepted:* 2024/10/14 ; *Published:* 2024/10/30



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provided the original work is not altered or transformed in any way, and that the work properly cited.

1. Introduction

In Japan, the public assistance system aims to guarantee the recipients a minimum standard of living and promote self-support. Approximately 80% of the recipients receive medical assistance¹⁾, and within those households, it is reported that there is higher rate of the followings; hospital visit of children and adults even at younger age, chronic diseases in all generations such as diabetes²⁾, mortality rates³⁾ and incidence rate of mental illness⁴⁾. Thus, many of the recipients have health problems, and in addition to economic independence, they require support in both managing their health and life.

In 2018, the health management support program for public assistance recipients was established with a law revision. From January 2021, it became mandatory for any social welfare service offices to enforce health management measures of both medical care and life support. Local governments first survey and analyze current health/ medical information and social resources, then followed by selecting approaches to local health issues based on the result from the following: navigating the recipient into (1) a health checkup, (2) a medical institution visit, and providing (3) health guidance on lifestyle-related diseases, (4) lifestyle support, (5) health guidance and lifestyle support in cooperation with primary physicians (as prevention of serious illness) and (6) guidance for frequent medical checkups.

The practice rate of health management support programs was 30.1% higher in social welfare offices with healthcare professionals, particularly in providing “health guidance and lifestyle support”⁵⁾. However, while 59.8% of offices have healthcare professionals, only 30% staff public health nurses⁵⁾. Previous research has demonstrated that the presence of medical professionals, such as public health nurses, leads to higher implementation rates of the program. However, public health nurses are often assigned to offices alone, which has been identified as a barrier from sharing their skills with other colleagues⁶⁾.

The Ministry of Health, Labour, and Welfare provides guidelines for the health management support program⁷⁾. While prior studies have addressed the support provided to female public assistance recipients⁸⁾, the skills of caseworkers⁹⁾, as well as the competencies of public health nurses before the support program became mandatory⁶⁾, research on the specific practices of public health nurses within the current framework remains insufficient. Therefore, this study aims to explore the specific practices of public health nurses in municipalities with pioneering approaches through in-depth interviews. The findings will offer concrete examples of effective practices that can be used to assist social welfare offices in developing training programs or guidelines, and ultimately in improving the quality of support provided to public assistance recipients.

2. Participants and Methods

2.1. Design

Qualitative study

2.2. Participants and recruitment

We called for public health nurses engaged in health management support program in 24 municipalities and 16 that were reported to be pioneering from the previous survey. The division management layers in the municipalities handed over an informed consent to public health nurses with experience. Interested participants mailed the form with information to the first author.

2.3. Data collection

We conducted semi-structured individual interviews lasting approximately 60-90 minutes in August 2022. The interviews were conducted via telephone or Zoom and recorded using an IC recorder. Before recording the interviews, informed consent was obtained. To understand the approaches, facilitators asked the participants to share on the followings: (a) description of the cases in which they provided the support, (b) any matter that they paid their attention to when engaged in the support and kind of support that they provided in cooperation with related organizations.

2.4. Data analysis

Demographic data of the participants were descriptively analyzed. Interview contents were transcribed and analyzed using content analysis¹⁰⁾. To ensure reliability and validity¹¹⁾, the following processes were conducted: (1) the first author each participant's statement several times to focus on the data and to acquire general understanding of the content, (2) the text statements for each answer were divided into units by its means, grouped according to the main content and the identified units were coded. (3) The codes were sorted into core, single and subcategories for each question by similarities and (4) to validate the analysis, Taniyama, having experience with content analysis, checked the initial attempt. Then, both authors discussed multiple times and revised the coding as well as categorizations until a high level of agreement was obtained. As a final step, (5) all co-authors specializing in community nursing and qualitative research reviewed the coding and classification. We conducted respondent validation with the participants to establish reliable qualitative research¹²⁾.

2.5. Ethical considerations

This study was approved by The Ethics Committee of Tokushima University Hospital (Approval Date 25th July 2022, Approval Number 4201). Participants were informed of the study's purpose verbally and in writings; the interviews were not intended to evaluate the respondents themselves and that they have a right to withdraw at any time. Participants who agreed voluntarily to participate signed consent forms. All participants were offered a 2,000-yen book card for participating the interview at the end of the study.

3. Results

3.1. Participants' background (Table 1)

5 respondents, 3 chief clerks, a chief examiner and member agreed to participate (Table 1). Their background as a public health nurse ranged from 19-26 years with experience in the social welfare sector ranging from 0.3-7 years. Interview duration varies from 42 to 93 minutes, with an average of 59.2 minutes.

Table1. Participants' background

	Local government	Position	Experience as public health nurse (year)	Experience in social welfare sector (year)	Interview duration (min)
1	A	Chief examiner	24	2	60
2	B	Chief clerk	16	0.3	46
3	C	Chief clerk	26	7	93
4	D	Member	20	0.5	55
5	E	Chief clerk	19	4	42

3.2. Results of qualitative analysis (Table 2)

Practices of the health management support program for the public assistance recipients was extracted and organized into 100 codes, 37 subcategories, 15 categories and 5 core categories. In this study, [] indicates core categories, and" " indicates what the participants stated. 5 core categories were classified as follows – [detecting life crises and health issues of the recipient and household], [reconnecting with society and establishing lifestyles that recipients would feel peace with], [assisting every aspect of recipient's life in perspective of health], [overlooking the local care system and utilizing them to support the recipient] and [turning individual case to regional matter]. (Table 2). The relationships between categories are not clearly sequential or hierarchical, but are practiced simultaneously or reciprocally.

The core category [detecting life crises and health issues of the recipient and household] included the categories such as: detecting life crises, capturing aspect of the recipients and capturing the health issues of the entire household. The participants practiced the following supports: determining the clinical condition and assessing urgency, detecting of the suicidal, grasping characteristics of the recipient, understanding recipients with little social involvement, finding health issues of the recipient's family members and reviewing the entire household as a system that promoted the recipient's circumstance.

“Some people lose the will to live and start by saying, 'I want to die,' even though we visit them to give them guidance on lifestyle-related diseases. Some people are mentally unstable and they spend their life day-night reversal. There are also cases in which they are drinking alcohol while being unable to go to the bathroom or eat, so we try to prioritize the issues and make sure they are not life-threatening.”

“We also help the recipients who may be dehydrated or in terminal stages of cancer but have been left untreated to get medical attention and treatment.”

The core category [Reconnecting with society and establishing lifestyles that recipients would feel peace with] included the following categories: not letting go of every opportunity to approach, setting a priority to stabilize life of the recipient first and tying back broken networks. The participants practiced the following supports: making use of services offered by medical assistance, implementing prompt helps from other care services, promoting self-support as top priority, tying stable life and health to come up with solutions, finding out the reasons for isolation from the society, having understanding for the recipients for difficulty in speaking out and acting and having accompanist functions.

“Many people live in solitude and although a full range of counseling agencies are involved with these people, they are unable to access them. They do not know how to access or speak information of themselves. So, we function as sort of a hub, connecting and reconnecting the broken networks.”

“When we visit, the person may begin to talk about his or her problems. He says, 'I haven't had a bath, I haven't done my laundry. I can't go to the hospital because I smell, I'm dirty, and I can't take the train,' he says. Understanding the reason why they cannot go to the hospital, we begin by having them cleaned.”

The core category [assisting every aspect of recipient's life in perspective of health] included the categories: being involved with the recipient over time, providing health guidance with understanding of recipient's background, being

involved with the recipient with prevention perspective and expanding support content flexibly. The participants practiced the following supports: taking time to develop relationship, aiming for small changes, grasping the recipient in depth, avoiding to give guidance from the very start, providing health guidance in accordance with life of the recipient, providing guidance according to the recipient, providing prevention support, valuing small concerns, broadening the sight for more than lifestyle improvement and understanding the importance of maintaining the basic life.

“Some don't even have cooking utensils such as microwave or frying pan. We ask them to show us their refrigerators and what they have inside. We also ask them how they spend their money. By looking at the house's condition, we can understand the living situation and provide health guidance according to the individual.”

The core category [overlooking the local care system and utilizing them to support the recipient] included the categories: taking measures to ensure smooth support, working together with local government to support the recipient and supporting as a whole community. The participants practiced the following supports: accompanying and utilizing visit by social caseworkers for acceptance by the recipient, handing over cases to appropriate sections, utilizing strength of sections, cooperating with caseworker and employment support worker, proceeding while sharing information with multiple professionals, leaving to highly expertise professionals, cooperating with employment service, cooperating with community volunteers, cooperating with doctors and employing private services.

“Sometimes, we visits alone but more often, we are accompanied by a caseworker. That way, it is easier for the recipient to accept us at the first approach. We are also involved as medical professionals into accompanying the recipient to the hospital or visiting the doctor. We also make sure that information is communicated in the way the individuals can understand.”

The core category [turning individual case to regional matter] included the categories: understanding the role as administrative public health nurse, who belongs to welfare division and serving as government affiliated public health nursing provider. The participants practiced the following supports: engaging with the recipient in ways that are unique to public health nurses in welfare division, making the best use of health exam data provided by department of health, taking on a role as administrative public health nurse and utilizing gained knowledge and experience as public health nursing.

“Many of the recipients are not very health conscious and are struggling to live their lives. Many of them are isolated and we need to be engaged with the feelings of working together as a team and an accompanist. By doing so, some recipients told me, 'I was able to do my best because you were by my side'. Although public health nurses in the welfare department provide more individualized support, I think it is important to evaluate the performance ratio of the program and link it to commercializing of the program.”

Table2. Practices of public health nurses in the health management support program for public assistance recipients

Core category	Category	Subcategory	Code
Detecting life crises and health issues of the recipient and household	Detecting life crises	Determining the clinical condition and assessing urgency	With the possibility of the body being left in poor condition, determine the clinical condition and assess urgency to deal with the situation
			If not life threatening, never hurry for immediate improvement, even the cause may be an inappropriate lifestyle
			Promptly find medical/ insurance card for those with alarmingly high sugar or blood pressure levels and navigate them to get medical support
			Connecting terminal stage cancer that is left untreated to medical support and treatment
		Detecting of the suicidal	Support to maintain the person's will to live when conversation starts with "I want to die"
			Build a team to support those who are suicidal
	Capturing aspect of the recipients	Grasping characteristics of the recipient	Expect the possibility of dropouts along the way
			Grasp the needs of recipients who express themselves emotionally, such as shouting
			Engage with the recipients understanding that many of them cannot speak out for themselves
			Expect and be prepared to provide support for the recipients who does not know how to make hospital appointment or visits to the doctors
			Understand that some may lack in recognizing the importance of health since they have no symptoms
			Expect that many recipients may be mentally unstable and low in motivation for health
			Grasp and comprehend habits the recipient has constructed over the years
	Capturing the health issues of the entire household	Finding health issues of the recipient's family members	Understand severe state of the recipients in scenes, where a can filled with urine is found in the room and consider how the environment of the house could be adjusted
			Understand that some cases may be complex and difficult to handle, because the recipient's issues are diverse
		Understanding recipients with little social involvement	Recognize the possibility of the recipient having no emergency contacts or people to rely on
			Understand that many of the recipients have no geographical or community ties
			Acknowledge and be prepared for cases that involve consultation with recipients who have been living on the street for over 30 years
		Reviewing the entire household as a system that promoted the recipient's circumstance	Uncover health issues of family members including elder/ child abuses, dementia, developmental disorders, etc.
			Prioritize critical family health issues over the recipient's lifestyle diseases
			Be prepare for supports that may involve cares for infants and toddlers
			Recognize and carefully observe the entire household for that they may have impact on the recipient
			Include the entire household into assessing health issues as well as lifestyle-related diseases

Core category	Category	Subcategory	Code
Reconnecting with society and establishing lifestyles that recipients would feel peace with	Not letting go of every opportunity to approach	Making use of services offered by medical assistance*	Approach when the recipient is advised for clinical visits, which are aided by medical assistance
		*Financial aid provided to public assistance recipients	Take time to ask questions on the recipient's health status upon issuing medical cards
	Setting a priority to stabilize life of the recipient first	Implementing prompt helps from other care services	Promptly introduce help as required
		Promoting self-support as top priority	Start by focusing on finding out their daily concerns for possible solutions as the recipient makes just enough to get by
			Prioritize establishing the life of the recipient with very limited tools including refrigerator, microwave, kitchen tools and air conditioning
			Advise to promote self-support life
			Understand situations, where making both ends meet every day is a struggle
			Begin with small support to make the recipient feel better
			View significance in intervening in daily life matters rather than lifestyle improvement
			Organize issues in their priority and put aside giving guidance on lifestyle diseases if needed
			Engage with the recipient in a way, which would direct them to better future
		Tying stable life and health to come up with solutions	Take into the account that they may be in a process of finding job, communicate and assist the recipients into the importance of continuing medications
			Understand that no health is no work (employment) when trying to find a solution
			Recognize that encouraging clinical visits may support stabilize life of the recipient in some cases, even their habits may remain the same
	Tying back broken networks	Finding out the reasons for isolation from the society	Take into account of reasons, why the recipients could not make clinical visits (could not use public transports due to their body odor and clothes condition etc)
			Arrange clinical visits to even those who had problems and have stopped visits
			Encourage the recipients, who changes hospitals frequently to stick and continue their visits
		Having understanding for the recipients for difficulty in speaking out	Have understanding that the recipient may not know how to get in touch with hospitals, though there may be many to ask help for
			Introduce and help connect the isolated recipient with appropriate hospitals, though they may have many to access
		Acting and having accompanist functions	Be involved with the mindset to function as a hub and connects the recipient to the social network
			Acknowledge that intervention of public health nurses is an opportunity for health management support program* to have connection with the recipient *A measure implemented by Ministry of Health, Labour and Welfare with the aim to promote self-support of the public assistance recipients
		Implementing prompt helps from other care services	Reassure by letting the recipient know that there will be public health nurse to accompany and help them into self-support their life

Core category	Category	Subcategory	Code
Assisting every aspect of recipient's life in perspective of health	Being involved with the recipient over time	Taking time to develop relationship	Think there will be another opportunity to be involved with the recipient, even if 1 visit may be missed
			Accept that constructing relationship with the recipient could take time with regular visits. With the public health nurse being a member of department where versatile information is centralized, there is no worry to lose connection with the recipient
			Adjust tones to avoid being harsh
			Maintain the relationship and let the recipients know that there will be another when the visit turns negative
			Stay patient until the recipients open up their troubles through multiple visits
	Providing health guidance with understanding of recipient's background	Aiming for small changes	Aim small changes without setting goals high/ expecting drastic improvement
		Grasping the recipient in depth	Try finding the strength of the recipient
			Try getting to know the recipient's personality
			Be involved with the recipient assuming to watch until the end and go through everything
		Avoiding to give guidance from the very start	Start by guiding the recipients into preparing for lifestyle disease improvement
			Build and prepare well the recipients into atmosphere to improve health before giving any health guidance
		Providing health guidance in accordance with life of the recipient	Advise for alternatives when the recipients choose unhealthy, cheap food
			Find out the recipient's value towards money and information such as food in their refrigerator, so that health guidance meeting their standard can be achieved
		Providing guidance according to the recipient	Start by listening to the recipient's life and navigate them into health topics
			Keep in mind a clear, easy to understand guidance when giving to recipient who may be challenged
			Minimize guidance at 1 visit
	Being involved with the recipient with prevention perspective	Providing prevention support	Connect the recipient to welfare services for people in needs of care/ disabilities in order to prevent any future damage
		Valuing small concerns	Approach in a way to prevent further damage
			Connect any small concerns to the relevant sections and share information
	Expanding support content flexibly	Broadening the sight for more than lifestyle improvement	Identify factors that contribute to economic poverty and discontinued employment in the public health perspective
			Think beyond implementing behavior change programs
	Expanding support content flexibly	Understanding the importance of maintaining the basic life	Have a sense of support without being conscious of 1 year time limit of the program
			Support maintaining a basic living of the recipient as a public health nurse
	Expanding support content flexibly	Understanding the importance of maintaining the basic life	Think beyond simply giving health guidance

Core category	Category	Subcategory	Code
Overlooking the local care system and utilizing them to support the recipient	Taking measures to ensure smooth support	Accompanying and utilizing visit by social caseworkers for acceptance by the recipient	Utilize regular visits conducted by social caseworkers and accompany them so that the recipient would feel more accepting of public health nurses Recognize sudden and solo visit by the public health nurse may make recipients feel at unease Conduct co-visit with the social caseworkers who know the recipient
		Handing over cases to appropriate sections	When in the case of the recipients showing motivation and improvement, hand over the case to department of health
		Utilizing strength of sections	Engage with the recipient by utilizing sections' strength of having centralized information
	Working together with local government to support the recipient	Cooperating with caseworker and employment support worker	Accompany the caseworker on their visits and provide assistance based on the recipient's lifestyle Capture it as an opportunity for caseworker and public health nurse to work together Proceed into working together with labor support worker
		Proceeding while sharing information with multiple professionals	Share any information to caseworker that is obtained from health guidance, which relates to assisting and self-supporting recipient's life Discuss with caseworker in advance, in cases where a large number of psychiatric drugs are prescribed from multiple visits to hospitals
		Leaving to highly expertise professionals	Have mental health social workers to get involved with recipients with mental health-related issues
	Supporting as a whole community	Cooperating with employment service	Be involved with the recipient in hand-in-hand with employment service
		Cooperating with community volunteers	Be involved with the recipient in cooperation with community volunteers
		Cooperating with doctors	Engage with the recipient, while consulting issues and sharing information to their doctor Accompany the patient to their visit to the hospital and support sharing information Explain to doctors any reasons for medical interruption on behalf of the recipient Have a doctor provide any concerns to council
		Employing private services	Promptly employ private service if required
Turning individual case to regional matter	Understanding the role as administrative public health nurse, who belongs to welfare division	Engaging with the recipient in ways that are unique to public health nurses in welfare division	Acknowledge that public health nurses are on forefront of social welfare Engage and ensure all guaranteed support is provided to the recipient (ie. Specific health guidance), while keeping in mind that they have no insurers Understand that approaching the recipient while younger, they are more likely to establish self-support from public assistance
		Serving as government affiliated public health nursing provider	Make good use of the health exam data of the recipients Provide health guidance by analyzing the data and receipts from medical assistance
	Taking on a role as administrative public health nurse	Utilizing gained knowledge and experience as public health nursing	Conduct population approach rather than individual assistance to the recipient with a sense of unity who lives in the same community Look into price performance ratio of the health management support program Utilize the support in order to better conduct community assessment Not only to limiting healthcare management of individual recipient but expands the scope of support in order to optimize the cost of medical assistance From limited support conducted by outsource, it was apparent that improving lifestyle, while they construct trust relationship with the recipient is difficult. Thus utilize the learning to switch to direct health guidance approach by council public health nurse Share any information on community characteristics to public health nurse in department of health, which is obtained through individual engagement
			Utilize strengths as a professional having ability to approach with a medical perspective Engage in health guidance through experience gained in the department of health

4. Discussion

In this study, we interviewed public health nurses engaged in the health management support program for the public assistance recipients. We found that they were practicing the following 5 strategies: detecting life crises and health issues of the recipient and household, reconnecting with society and establishing lifestyles that recipients would feel peace with, assisting every aspect of recipient's life in perspective of health, overlooking the local care system and utilizing them to support the recipient, and turning individual case to regional matter.

In the core category of [detecting life crises and health issues of the recipient and household], the following 3 categories were identified: detecting life crises, capturing aspect of the recipients and capturing the health issues of the entire household. The participants prioritize addressing immediate life threats such as assisting those who may be suicidal. According to a previous study, the prevalence of suicide attempts among the recipients is about twice as high as non-recipients¹³⁾. This fact underscores the importance of addressing life-threatening crises as a priority. Also, rather than immediately correcting inappropriate lifestyle habits of the individuals, public health nurses were engaged in capturing health problems of the whole household and setting the foundation to support long-term improvement. In households receiving public assistance, deterioration of children's health has been reported to be directly and indirectly affected^{14,15)}. These studies emphasize the need for public health nurses to take a comprehensive view of the health of all household members while avoiding life-threatening situations.

In the core category of [reconnecting with society and establishing lifestyles that recipients would feel peace with], the following 3 categories were identified: not letting go of every opportunity to approach, setting a priority to stabilize life of the recipient first and tying back broken networks. The public health nurses intervened and focused to stabilize the recipient's lives by arranging necessary care providers and re-visits for those whose visits had been interrupted due to problems with the hospital. They also played a central role in reconstructing social networks by building bridges to counseling agencies. When compared to the non-recipient, it has been shown that the recipient with social connections were more likely to go off the public assistance within 3 years¹⁶⁾. Public health nurses are required to work toward the recipients' independence and reestablish the social connections that have once been disconnected.

In the core category [assisting every aspect of recipient's life in perspective of health], the following 4 categories were identified: being involved with the recipient over time, providing health guidance with understanding of recipient's background, being involved with the recipient with prevention perspective and expanding support content flexibly. The participants practiced their support to avoid going straight to directing the recipients into health guidance with the thoughts that they would have other chance to meet them again even if they missed one opportunity. According to the Ministry of Health, Labour and Welfare, half of the recipients have been receiving public assistance for more than five years¹⁷⁾. On the other hand, the support period for a specific health guidance lasts about 3 to 6 months¹⁸⁾. The health management support program allows more time to understand the background and build relationship with the recipients, which can be used as a strength. Furthermore, data on the number of the assistance receiving households shows that 55.6% of them were elderly and 24.9% were challenged or injured¹⁾. From this, it can be inferred that many recipients have medical conditions. Therefore, public health nurses need to work in hands with the recipient as well as preparing them into improving their lifestyle-related diseases while making the most out of the long-term support potential.

In the core category [overlooking the local care system and utilizing them to support the recipient], the following 3 categories were identified: taking measures to ensure smooth support, working together with local government to support

the recipient and supporting as a whole community. They accompanied caseworkers on their visits, provided support based on daily lives of the recipients and collaborated with employment services and doctors. When supporting the recipients, the importance of leading a connection to social resources is emphasized and peer support has been pointed out crucial¹⁹⁾. Patient navigation via telephone has also been reported to help increase the rate of health checkups²⁰⁾, while decreasing the number of hospitalizations and emergency room visits²¹⁾. The significance of collaborating and coordinating with other professionals has also been emphasized²²⁾, thus public health nurses only require to connect the recipient into necessary services but also actively work closely with related departments such as doctors, caseworkers and community volunteers.

In the core category [turning individual case to regional matter], the following 2 categories were identified: understanding the role as administrative public health nurse, who belongs to welfare division and serving as government affiliated public health nursing provider. The participants carefully checked to ensure that regular services, including specific health guidance, were not left undone as the recipients were not insured by national health insurance. In addition, experience and learnings from individual cases were shared with department of health to expand on activities to solve local problems. The health management support program aims to function as a strengthening measure to prevent lifestyle-related diseases and promote data-based preventive means⁸⁾. With this program, public health nurses are called for better conducting community assessment, analyze receipts of medical assistance as well as health checkup data from department of health and provide appropriate health guidance.

There are several previous studies, which provide description of public health nurse's practice in supporting the public assistance recipients^{6),8)}. However, there is no study that describe their practices after implementation of the current program. This study's findings offer concrete examples of effective practices from municipalities with pioneering approaches which can assist public health nurses in social welfare offices. Moreover, this study contributes to filling the gap in the literature by focusing on how public health nurses adapt and apply their skills in the current program, offering practical guidance for improving the quality and consistency of health management support programs nationwide.

5. Limitations and implications

The results of this study could be used when public health nurses become newly assigned to social welfare offices where few were assigned. Table 2 summarizes the reported approaches of the health management support the study has compiled through the eyes of the public health nurses. We propose 5 fundamental domains to consider and address in the support settings. This study clarified public health nurses' skills to support the recipient while assessing priorities from life crises to putting health issues on hold when not urgent.

There are 2 primary limitations. First, the data include participants who have worked in a social welfare office for less than a year. Public health nurses often move every 3 years and therefore could affect by its change. However, all of the participants in this study were public health nurses with many years of experience who were recommended by pioneering support municipalities. Second, the study included 5 participants, which was a limitation due to the specific focus of the research. We targeted public health nurses involved in the health management support programs across 24 municipalities, including 16 identified as pioneers in this program. This group represents a valuable and highly relevant population for understanding the implementation of the program. Future research needs to expand the sample size and implement quantitative data. An example may include exploring how public health nurses' practices in health management support programs at welfare offices have impact on health-related outcomes for public assistance recipients.

6. Conclusion

Public health nurses in municipalities with pioneering health management support conducted approaches such as assessment of life risks, adjustment of habits and going beyond prevention of lifestyle-related diseases. They also helped the recipients into actively connect with society and providing comprehensive support by accompanying them.

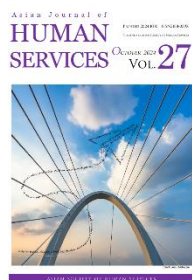
Acknowledgements

We thank the public health nurses who took time out of their work to participate in this study.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

Study on Work-life Balance and Emotional Intelligence among Employees Working in IT Sectors Chennai

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ABSTRACT

Work-life balance (WLB) refers to an individual's capacity to meet job and family responsibilities, as well as other duties and hobbies. Maintaining a healthy WLB is important not just for relationships and wellness, but also for enhancing productivity and performance in organizations. Along with relationships, leadership, harmony, and communication, emotional intelligence appears to be an important component of mental abilities connected to WLB and achievement in life. Emotional intelligence (EI) is all about understanding and managing emotions effectively to alleviate stress, communicate effectively, empathize with others, overcome obstacles, and settle conflicts. Both the WLB and EI play a vital role among individuals in controlling their emotions, navigating relationships, and creating supportive jobs. Organizations can benefit from increasing the employee's talents by educating them and promoting a positive thinking culture. In this context, the study aims to understand the relationship between WLB and EI among the employees who are working in IT Sectors. The study is conducted as quantitative research by choosing 100 respondents working in IT sectors between the age of 21 to 50 years by using a convenience sampling method to collect the data from the respondents. The study follows the theoretical framework applying the 'Boundary Theory' proposed by Nippert Eng (1996) on managing between the work and personal lives. The findings of the study revealed that there is a positive correlation between WLB and EI among the employees working in the IT sector. Additionally, the study found that 62% of employees reported a medium level of work-life balance, and 76% of employees had a medium level of emotional intelligence.

Keywords: Work-life balance, Employees, Emotional intelligence, IT sector

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Received: 2024/02/29 ; *Revised:* 2024/06/26 ; *Accepted:* 2024/10/14 ; *Published:* 2024/10/30



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1. Introduction

In today's fast-paced and dynamic workplace, employees constantly managing the delicate balance between professional obligations and personal well-being. This delicate balance is captured in the idea of Work-life balance (WLB) is the equilibrium that people seek between the demands of their work lives and the fulfillment of their personal and family needs. Achieving the right work-life balance is necessary for lifestyle wellness, efficiency, and achievement over the long run. The capacity to carry out duties at work while maintaining a strong commitment to one's family and other obligations outside of work is known as work-life balance (WLB definition⁷). Emotional Intelligence (EI) is defined as the capacity to recognize, evaluate, and manage one's own emotions while also effectively navigating and influencing the emotions of others¹⁵). It includes self-awareness, self-control, social awareness, and relationship management. Through EI, it influences one's capacity to manage the difficulties associated with work and life. EI appears to be an important aspect of mental capabilities associated with WLB and personal achievement. Along with relationships, leadership, harmony, and communication will serve as the foundation for professional relationships with others. Furthermore, those with greater intellectual ability have stronger interpersonal and communication abilities. This can benefit their connections with coworkers, bosses, and customers by fostering a friendly and collaborative work atmosphere. Employees with EI are also more creative and able to solve difficulties using their creativity²⁷).

According to previous research conducted by Powell highlights conflicting roles in work and family significantly impact individuals WLB. These roles represent areas where individuals often struggle to find equilibrium, which is a key aspect of achieving WLB. While work and family are central components, other factors such as personal interests and social activities may also contribute to WLB challenges²¹). Another study states that individuals with good EI will find it simpler to communicate with others, and in the workplace, they will find it easier to collaborate with others to finish tasks and reach objectives¹⁸).

As organizations see the value of employee well-being and its influence on performance, incorporating EI into workplace culture becomes increasingly important. This entails creating an atmosphere that promotes self-awareness, empathy, and effective communication, resulting in a more harmonious WLB. The Information technology sector has been constantly expanding as it creates more job opportunities for individuals. As technology changes the modern workplace, IT employees confront new difficulties involving flexibility, resilience, and interpersonal skills. Both WLB and EI play a vital role in sustaining long-term success in the organization as well as fostering a positive work environment. This paper investigates the link between WLB and EI among employees who are working in the IT sector.

2. Objectives

1. To understand the association between EI and WLB among employees working in IT sectors.
2. To identify the relationship between WLB and EI based on the gender of the respondents who are working in IT Sectors.
3. To identify the level of EI and WLB of the respondents who are working in IT Sectors.
4. To suggest recommendations based on the findings to improve their WLB and EI.

3. Rationale of the study

In the ever-changing environment of the information technology sector, WLB and EI are essential factors influencing employees' overall well-being and professional productivity. EI and WLB are vital elements in determining

organizational effectiveness, particularly in India's IT sector. Individuals must be socially and emotionally experienced as globalization and digitalization continue to accelerate. In the Indian IT business, social norms frequently govern how employees interact with one another and with customers²⁶⁾. EI can be accelerated by having a healthy WLB which will lead to showing positive emotions towards their work and as well as improving their performance in their work. Employees who work in the IT sector are subjected to more stress, which has an impact on their mental health as well as their EI, which influences both their personal and professional lives. Hence for an individual working in an IT company, EI and WLB are important to lead personal and professional life¹⁸⁾. So this study was done to understand the employees WLB and their emotions in fulfilling the tasks to achieve the overall work-life equilibrium.

4. Need of the study

The WLB and EI have a significant influence on employee well-being, work happiness, and overall performance in every aspect of their lives. It enables individuals to overcome the challenges in the workplace by having a healthy WLB which creates a sense of feeling towards their job by possessing EI which are likely to be more satisfied with their jobs²²⁾. Both components play a vital role in the workplace to enhance productivity and performance, the effectiveness of leadership, work satisfaction, and commitment to their goals. By addressing these factors which are connected to the employees, it will be easy to understand how the workplace scenario has been set up in the organization by knowing the WLB and EI of the employees who are working in the IT sector field. Finally, this study can help us understand the link between WLB and EI, which can have a substantial impact on an individual's well-being and performance at work.

5. Review of Literature

WLB is all about balancing the individual personal as well as professional life. EI deals with the ability to manage the emotions of people in a positive way to relieve stress, empathize with others, and overcome challenges by reducing conflict. A study explained that individual factors do not favor the retention of female employees in the South Indian software business. The findings indicate that societal and surroundings influence WLB and the retention of female employees in the software firm¹⁶⁾. Another study revealed the issues of WLB of women who are working in the IT sectors. The findings of the study show that working women who have been married and have kids are suffering from lifestyle diseases like anxiety, mood swings, and hypertension. It is observed that women IT professionals who are playing a dual role have to compromise either family or their professional life⁶⁾. A similar study states that maintaining self-control, awareness, and motivation in their work allows them to regulate their emotions in both the workplace and their personal lives, allowing them to evenly balance work and life³⁰⁾. Another study states that EI, job involvement, job satisfaction, and WLB have a direct influence on job performance. The results demonstrate that employee happiness and engagement boost productivity and employee loyalty, all of which contribute to the organization's overall success¹⁷⁾. A study states that employees WLB is greatly influenced by their awareness of themselves and their ability to manage various situations. In this regard, EI plays a crucial role in handling emotions as well as balancing personal and professional lives³²⁾. A similar study revealed that life experiences help people improve their EI, which in turn influences how well they manage their personal and professional lives. The results indicate that creating a person's life-work balance is seen to be mostly dependent on their EI and that it is more reasonable to see work as a part of overall life satisfaction considering the importance of one's personal life¹³⁾. A study explores the connection between EI and occupational stress in the teaching fraternity by mediating workplace

spirituality. The study found that EI and spirituality at work influence occupational stress in the teaching profession. The effect of spirituality in the workplace on EI and occupational stress is zero or very little. Research suggests that those with high spirituality and intermediate emotional intelligence tend to have lower stress levels ¹⁹⁾. Another study states the role of EI in increasing the quality of work life of school principals. The results indicate that increasing emotional intelligence can provide a better work environment for principals, leading to improved performance in terms of professional as well as personal lives ⁸⁾. A similar study states that EI is basic eligibility where the health care providers must have an emotional understanding of their human resources and the ability to manage people, conditions, and infrastructure effectively. The findings of the study reveal that healthcare managers have strong emotional awareness and self-evaluation skills. It also shows that women had greater EI and management-evaluation of self-esteem compared to males ¹²⁾. A study explains the role of digital competence in WLB and job stress in service performance through moderating EI. The study's findings show that although digital competence improves WLB and stress, it has minimal influence on service performance. Furthermore, EI moderates the link between job stress and service performance, but not the relationship between digital competence and WLB ⁹⁾. Another study reveals on how work-family conflict, WLB, and emotional intelligence impact employee success in business. The study found that work-family conflict had no direct influence on WLB. The EI has a favorable impact on WLB. Furthermore, data analysis showed that WLB had a positive impact on employee performance ³³⁾. Another study explains whether EI is the mediator between workplace bullying and job performance. The results of the study show that workplace bullying had an unfavorable effect on work performance, with a smaller impact for those with high EI and a larger impact for those with low EI. The study underlines the necessity for organizations to eliminate workplace bullying and the relevance of (EI) for people who are mistreated at work ²⁾. Another study states that EI has a moderating effect on the stress generated by the pandemic which has influenced work performance in comparison with counterproductive work behaviors. The result shows that professionals with strong EI and low COVID stress demonstrated superior performance and lower counterproductive work behaviors compared to those with lower emotional capabilities and higher stress ²³⁾. A study explains the determinants of WLB of women employees working in information technology companies. The study found that personal factors such as regular exercise, yoga, meditation, a balanced diet, good sleep, and hobbies have the greatest impact on women's WLB. Working from home also plays a significant role in it ⁴⁾. Another study states that employee engagement, WLB has become a challenge for many leaders, managers, and organizations in maintaining a balance between their professional and personal lives. EI plays a vital role in having a good WLB which benefits both the employer and the employee ²⁹⁾. Another study states that in today's digital work environment, people are more concerned about techno-stress. To ascertain this, the study examines how techno stresses influence employees WLB and their intention through burnout, as well as the extent to which positive psychological capital may mitigate this link²⁸⁾. Another study explains the EI and WLB in information technology companies. The findings reveal that Emotional intelligence improves employee performance. An emotionally intelligent organization follows a planned strategy to enhance its business performance which can be done by having a healthy WLB in the organization ¹⁰⁾. A study reveals that Struggling to combine work with family obligations can negatively impact an individual's well-being and quality of life. Employees often struggle to balance work and personal life in today's fast-paced world. However, emotional stability, mindfulness, and health and wellness programs can assist in achieving the right balance ²⁴⁾. A similar study states the relationship between EI and employee well-being through perceived job fit. The result shows that the study found a favorable correlation between emotional intelligence EI and perceived work fit with employee well-being. nevertheless, the relationship between EI and

employee well-being was larger than that observed between perceived person-job fit and employee well-being¹⁾. The study on the impact of managers EI on WLB revealed that managers empathy and social skills had a substantial influence on workers' work-life balance. The study found gender variations in respondents' perceptions of work-life balance initiatives, but no differences in employee perceptions based on marital status and number of children¹⁴⁾. A study explains the role of EI and quality of work life in improving work attitudes among different industries. The study's findings show that employee fulfillment, involvement, and perceived organizational support mediated EI and work-life quality. Employee engagement and organizational commitment, on the other hand, did not serve as a bridge between emotional intelligence and work-life quality³¹⁾.

6. Theoretical Frame Work

Boundary theory was proposed by Christina Nippert Eng (1996) states that people manage the boundaries between their job and personal lives by dividing up and/or combining the two. The boundary work represents two forms known as placement and transcendence. The placement explains the establishment of distinct boundaries between various domains or positions in a person's life. It entails identifying and maintaining boundaries between work-related tasks, personal duties, and other social roles (e.g., family, community, hobbies). Transcendence, on the other hand, refers to the capacity to go beyond strict boundaries and combine many parts of one's life in meaningful ways. Individuals who practice transcendence seek to integrate elements from one domain into another, resulting in a more dynamic and connected experience. This can lead to a sense of harmony and fulfillment as people use their many responsibilities and experiences to improve their overall lives. This theory is connected to WLB and EI as it deals with emotional well-being as well as their personal lives in achieving the overall well-being of the individuals.

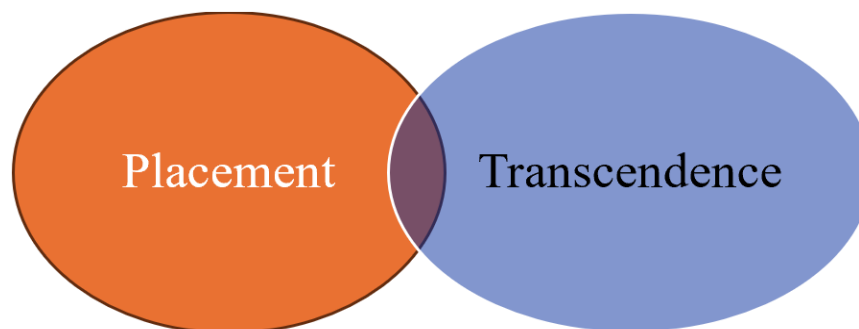


Figure 1

7. Research Methodology

7.1. Tools

The WLB was assessed using the work-life balance scale developed by Udai Pareek and Surabhi Purohit (2010)²⁰⁾. This scale consists of 36 items designed to measure an individual's perception of their balance between work and personal life. The respondents were asked to rate each item on a Likert scale ranging from (0 = If it is not true to 4 = If it is definitely true). A higher score indicates a better perceived WLB. The EI was measured using the emotional intelligence scale

developed by Nicola Schutte (1998)²⁵. This scale comprises 33 items aimed at assessing an individual's ability to recognize, understand, and manage their own emotions as well as the emotions of others. Respondents rated each item on a Likert scale ranging from (1= Strongly disagree to 5= Strongly agree). Higher scores indicate higher levels of EI.

7.2. Data Collection

The survey was done through Google Forms, including the aforementioned scales along with demographic questions to collect respondents' basic information such as age, gender, educational qualification, and marital status.

7.3. Data Analysis

The data was analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to summarize the demographic characteristics of the sample and to examine the relationships between the variables, correlation analysis has been employed in this study.

7.4. Sampling

The quantitative study was carried out among the employees in IT sectors, Chennai between the ages of 21 and 50. This study employed a descriptive research approach. The sample size of the study consists of 100 respondents using the Convenience sampling method. The researcher was able to collect the data so that the interested employees could participate in the study through their convenience in giving their information within a limited time.

7.5. Data source

The primary data source was collected from the respondents through Google Forms and the secondary source of data was collected from research articles and newspapers related to WLB and EI.

8. Hypothesis

- 1) There is a strong correlation between the respondents EI and WLB.
- 2) There is a relationship between the Gender and WLB of the respondents.
- 3) There is a significant difference between the Gender and EI of the respondents

9. Analysis

9.1. Socio-demographic details

9.1.1. Age of the respondents

The previously provided information indicates that 67% of the respondents were between the ages of 21 and 30, 22% were between the ages of 31 and 40, and 11% were between the ages of 41 and 50.

Table 1. Respondents age-based distribution

S.NO	AGE	FREQUENCY	PERCENT
1	21-30	67	67
2	31-40	22	22
3	41-50	11	11

9.1.2. Gender of the respondents

It is found from the above figure that 52 % of participants were male while 48 % of the respondents were female.

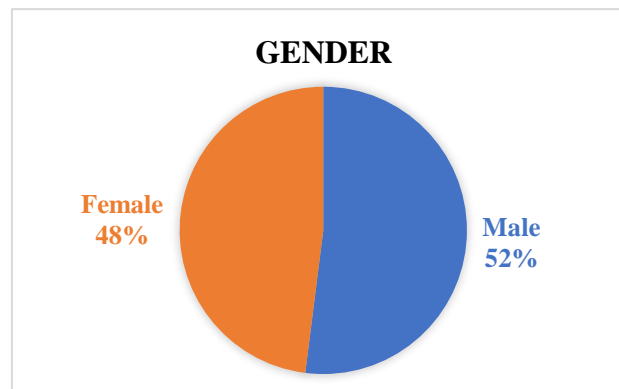


Figure 2. Distribution of Respondents by their Gender

9.1.3. Total years of work experience in the organization

Based on the information mentioned above, it can be observed that 29% of respondents have 1-2 years of work experience, 37% have 3-5 years, 21% have 6-9 years, and 13% have 10-14 years.

Table 2. Distribution of Respondents by the years of work experience in the organization

S.NO	FREQUENCY	FREQUENCY	PERCENT
1	1-2 year	29	29
2	3-5 year	37	37
3	6-9 year	21	21
4	10-14 year	13	13

9.1.4. Marital Status of the respondents

The following information shows that 71% of respondents were married and 29% were single.

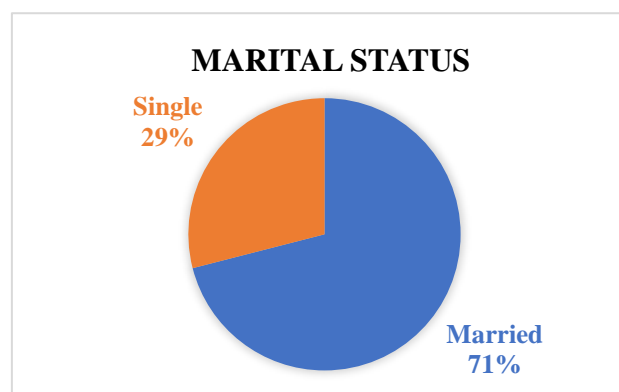


Figure 3. Respondents Distribution Based on Marital Status

9.1.5. Type of family of the respondents

It is found from the above figure that 87 % of respondents were from nuclear families, compared to 13 % from joint families.

Table 3. Distribution of Respondents by their type of family

S.NO	TYPE OF FAMILY	FREQUENCY	PERCENT
1	Joint family	13	13
2	Nuclear family	87	87

9.1.6. Domicile of the respondents

It is found from the above figure that 69 % of the respondents were from the urban, 9 % of respondents were from the rural sector, and 22 % were from the semi-urban sector.

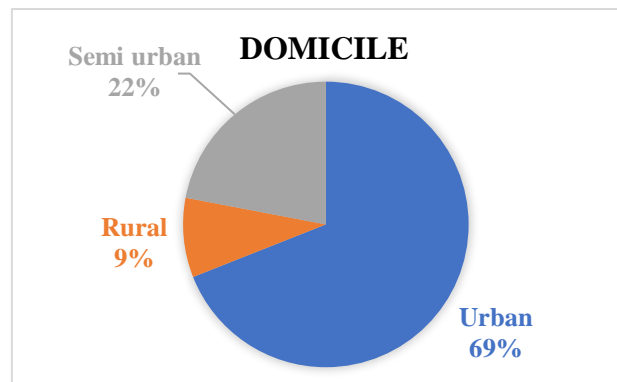


Figure 4. Domicile of the respondents

9.2. Hypothesis 1: WLB AND EI

The table 4 depicts the association between WLB and EI. The alternative hypothesis is accepted and proves a link between WLB and EI. Results show that there is a positive correlation between WLB and EI. If EI increases the WLB also increases.

Table 4. Correlations

		Individual Score of WLB	Individual Score of EI
Individual Score of WLB	Pearson Correlation	1	.411**
	Sig. (2-tailed)		.000
	N	100	100
Individual Score of EI	Pearson Correlation	.411**	1
	Sig. (2-tailed)	.000	
	N	100	100

9.3. Hypothesis 2: GENDER AND WLB

The table demonstrates that $P < 0.05$, hence the alternate hypothesis is accepted. As a result, there is a connection between Gender and WLB.

Table 5. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.878 ^a	13	.032*
Likelihood Ratio	33.111	13	.002
Linear-by-Linear Association	8.247	1	.004
N of Valid Cases	100		

9.4. Hypothesis 3: GENDER AND EI

The table demonstrates that $P < 0.05$, hence the alternate hypothesis is accepted. As a result, there is a connection between gender and EI.

Table 6. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.168 ^a	17	.004*
Likelihood Ratio	47.896	17	.000
Linear-by-Linear Association	2.474	1	.116
N of Valid Cases	100		

9.5. Levels of WLB

Table 7 demonstrates that 22 % of the respondents have a low degree of WLB, compared to 62 % who have a medium level and 16 % who have a high level of WLB.

Table 7

LEVEL	PERCENT
Low	22
Medium	62
High	16
Total	100

9.6. Levels of EI

Table 8 shows that 17 % of the respondents have low EI, compared to 76 % of the respondents who have a medium level and 7 % of the respondents who have a high level of EI.

Table 8

LEVEL	PERCENT
Low	17
Medium	76
High	7
Total	100

10. Findings

The study reveals that WLB and the EI of employees are closely related. Hypothesis 1 demonstrated that there is a link between WLB and EI by using correlation analysis. This suggests that individuals who perceive a better balance between their work and personal lives also tend to exhibit higher levels of emotional intelligence. This finding implies that as employees develop greater EI, they are more likely to effectively manage their work and personal responsibilities, leading to a healthier work-life balance. Hypothesis 2 is demonstrated by using the chi-square test which reveals a significant relationship between gender and WLB. This suggests that gender influences the perception of WLB among employees in the IT sector. Hypothesis 3 has been tested using the chi-square test which indicated a significant relationship between gender and EI. This implies that gender influences the level of emotional intelligence among employees in the IT sector. Under the levels of WLB, the findings reveals that 22% of the respondents reported a low level of work-life balance, indicating that a significant portion of employees in the IT sector struggle to balance their work and personal lives. 62% reported a medium level of work-life balance, suggesting that a majority of employees perceive their balance to be adequate but not optimal. Only 16% reported a high level of work-life balance, indicating that there is room for improvement in creating a supportive work environment that enables employees to achieve a better balance. Under the levels of EI, the findings shows that 17% of the respondents reported low emotional intelligence, indicating that a portion of employees may struggle with recognizing, understanding, and managing their emotions effectively. 76% reported a medium level of emotional intelligence, suggesting that most employees have a decent level of emotional awareness and management skills. Only 7% reported a high level of emotional intelligence, indicating that there is potential for further development in this area to enhance employees emotional capabilities. The socio-demographic findings show that 67% of respondents were between the ages of 21 and 30. 48% of participants were female, while 52% were male. 37% of the participants have 3-5 years of work experience with the organization. 71% of respondents are married, while 87% belong to a nuclear family. In accordance with the respondents' domicile, 69% come from urban families.

11. Discussion

The study was conducted to understand the relationship between the WLB and EI among the employees working in the IT sectors. The results show that 69% of the respondents have a medium level of WLB and 76% of the respondents have a

medium level of EI. This indicates that a significant portion of the respondents can balance their work as well as family where emotional intelligence plays an important role in managing emotions from both aspects. Previous study shows that EI has an impact on the WLB of employees working in the IT sector ¹¹⁾. This study reveals that both the WLB and EI are connected as gender aspect plays a vital role in initiating the family as well as the profession in improving the well-being of the organization. Another study has shown that gender does not have a significant difference in EI among employees who are working in the IT sector⁵⁾. In this study, the finding indicates that gender does play a significant role in EI, as there may be unique challenges or experiences associated with gender that influence EI among IT professionals. Another study finding shows that WLB impacts employee performance and EI, contributing to the cause of attrition. Work-family conflict negatively impacts both employees and organizations. Recruiting individuals with strong emotional intelligence can help reduce conflict and attrition ²⁹⁾. Another previous study revealed that the majority of IT employees, regardless of gender, have an optimistic perspective on EI and WLB. Female employees are more likely than males to report that their work and job roles interfere with their personal lives ³⁰⁾. Previous study findings show that there is a positive association between EI, WLB, and employee well-being³⁾. The findings of this study align with these findings, as the results demonstrate a positive correlation between WLB and EI among employees in the IT sector. By connecting boundary theory in this study, it can be stated that employees in the IT sector may strive to integrate work and personal life responsibilities to create a more balanced and fulfilling lifestyle. This integration may include strategies such as flexible work arrangements, telecommuting, or creating boundaries to separate work and leisure time. Effective boundary management and high EI contribute to employee performance and organization retention. The employees who navigate WLB boundaries and manage their emotions will likely be more engaged, productive, and committed to their organizations. This will help to reduce attrition rates and create a more positive and supportive work culture.

12. Suggestions

The organizations should implement training programs that address both WLB and EI. These programs can provide employees with skills and strategies to manage both aspects effectively. Human resource management has to strengthen the existing employee assistance programs or introduce new ones. This can provide employees with resources for addressing personal and work-related challenges, including mental health and emotional well-being. The organization has to encourage healthy practices such as regular breaks, mindfulness activities, and stress management techniques. This can contribute to the employees WLB and emotional well-being. Human resource management has to conduct engagement activities by facilitating the creation of peer support networks where employees can share experiences, insights, and advice related to WLB and EI.

13. Limitations of the study

This study employs basic statistical analyses such as correlation analysis to identify the relationship between WLB and EI. Future research has to explore the causal relationships between the WLB and EI among employees working in the IT sector. This study focused on employees who are working in the IT sector, which may limit the generalizability of the findings to other industries or geographic locations. Future research has to explore the WLB and EI among employees in different sectors and locations to provide a broader understanding of these constructs. This study did not explore the other factors that may influence the WLB and EI such as job satisfaction, organizational culture, and leadership qualities.

Future research could investigate the interaction between these factors through WLB and EI to provide an understanding of employee well-being in the workplace.

14. Conclusion

The study clarifies the complex interplay between WLB and EI among workers in the IT industry. Several important conclusions from quantitative research involving 100 respondents were drawn, emphasizing the role that WLB and EI play in impacting both individual well-being and organizational success. The findings of the study indicate that a significant proportion of employees in the information technology sector exhibit moderate levels of both EI and WLB. This suggests that they possess the ability to manage their emotions in an environment that fosters both WLB and EI in their workplace. The study highlights the need for efficient border management in attaining WLB and EI by integrating the boundary theory. More harmonious integration of work and personal life duties can be facilitated by strategies like telecommuting, flexible work schedules, and mindfulness exercises, which will ultimately improve employee well-being and corporate performance. In light of these findings, companies are urged to put in place training initiatives, such as mental health training sessions, to assist WLB and EI within their staff. Long-term success can be achieved by organizations through fostering a positive and productive work culture that prioritizes the complete well-being of their employees.

Acknowledgements

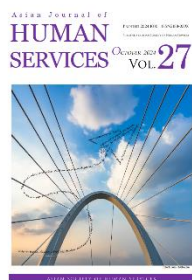
I want to express my gratitude to my guide, Dr. Binu Sahayam D, for her constant help in finishing this research work. I also want to thank my co-scholars, Ms. Indhumathi and Ms. Anbumalar, for their technical support. I truly thank everyone who participated for taking the time to fill out the Google form, which allowed me to carry out this research.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

Got Hitched Too Soon; Life Experiences of Women in Early Marriage in India

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ABSTRACT

Early marriage is one of the most serious social problems and has significant consequences for women's mental and physical health. Early marriages are often associated with sociocultural circumstances such as illiteracy, poverty, and crime against women in low-income areas. Because of the unsafe and unacceptable environments at home and in society, some girls decide to marry young. In addition to the negative impact on women's well-being, early marriage also hinders their educational and economic opportunities, hindering their ability to acquire essential skills and knowledge for personal and professional growth. It often leads to limited access to education and perpetuates the cycle of poverty and inequality, further exacerbating the challenges faced by women in marginalized communities. Additionally, early marriage often perpetuates harmful gender norms and reinforces patriarchal structures, denying women the autonomy and agency to make decisions about their own lives. The study aimed to explore the causes and consequences of women in early marriage in Chennai, India, who were married below 18.

Keywords: Early marriage, motherhood, health, well-being, consequences

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Received: 2024/01/22 ; *Revised:* 2024/07/31 ; *Accepted:* 2024/08/27 ; *Published:* 2024/10/30



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1. Introduction

Early marriage is any marriage concluded before the age of 18. Compared to almost one in four ten years earlier, one in five young ladies between the ages of 20 and 24 were married when they were still in their early years. However, global advancements have not been equal in many areas, leaving the most vulnerable girls behind. These disparities are particularly pronounced in developing countries, where cultural norms and a lack of access to education perpetuate child marriage, declares UNICEF¹⁾. Although both boys and girls marry early, the number of girls married at a young age outnumbers boys in many countries around the world. 27% of women were married before their 18th birthday in India, according to National Family Health Survey-5²⁾. Nour 2009 says early marriage violates many human rights, including education, freedom from violence, reproductive health rights, access to sexual and reproductive health care, employment, freedom of movement, and the right to consensual marriage³⁾. Nasrullah reported that the implications of early marriage have long-term effects beyond women struggling with the health effects of getting pregnant too young and too often, their lack of education and economic independence, marital rape, and domestic violence⁴⁾.

Abdurahman says, early marriages have been linked with the practice of 'protecting girls.' It is thought to be a means of making sure a daughter is 'protected', or firmly placed under male control, submissive to her in-law, that the children she bears are 'legitimate,' and that intimate bonds between couples do not threaten the stability of the family, thus ensuring a girl is completely wrapped into a 'family life'. Parents might think that having a regular male guardian will make their daughter safer and happier⁵⁾. Another major reason for early marriage is that it reduces the likelihood of having sex before marriage, thus protecting the dignity and honor of the family's image or name in the community.

Indian cultures place a high value on girls remaining virgins before getting married, and this can manifest itself in several practices designed to 'protect' a girl from unsanctioned sexual activity. In many cases, parents withdraw their girls from school as soon as they begin to menstruate, fearing that exposure to male students puts them at risk. All of these practices are meant to safeguard the girl from male attention, but marriage is perceived by concerned parents as the best 'protection' strategy. Suyanto says that, in many cases, girls themselves prefer to marry their partner at an early age for a variety of reasons, including premarital romance and pregnancy, troubled family situations, parents' extramarital affairs, and a lack of interest in education⁶⁾. These factors can significantly impact a girl's prospects, as marrying at a young age often results in limited opportunities for personal and professional growth. Acquiring a life partner is a necessary step towards leading a secure and dignified life. In both situations, whether arranged by parents or by self-choice, "marriage" is viewed as a means to secure women's "safety and security." This perception stems from societal norms and cultural traditions that prioritize the role of women as wives and mothers. Additionally, marriage is often seen as a means to gain social acceptance and validation within their communities. Despite the potential limitations and challenges that may arise from early marriage, many girls believe it offers them a sense of stability and protection in an uncertain world.

Women who marry young have several disadvantages, including social and familial difficulties, mental and physical health issues, and other complications. Early marriage has been linked to several negative outcomes, including depression; increased risk of sexually transmitted infections; high fertility (three or more births); recurrent pregnancies in less than three months; unwanted pregnancies; and non-use of contraception before the first delivery. Ram reported that the adolescents face many obstacles and problems when they become mothers, both for their own physical and emotional well-being and that of their future offspring⁷⁾. Patra found out that, Mothers with poor health and nutritional status are likely to

have malnourished children, and their children are more likely to die during infancy and develop health-related complications as they grow⁸⁾. Prakash et al. reported that, inadequate reproductive health raises the financial burden on the household for preventive (food and nutrition) and curative (illness control) care, which exacerbates the poverty cycle even more. This is true even though data on women's nutritional status before marriage is typically ignored. Additionally, inadequate reproductive health can also lead to increased maternal and infant mortality rates, further impacting the well-being of the household⁹⁾. Furthermore, the lack of access to proper healthcare and nutrition for mothers can lead to long-term consequences for their children, such as stunted growth and cognitive impairments. These challenges not only affect the immediate family but also have broader societal implications, as malnourished children may struggle to reach their full potential and contribute to the development of their communities.

2. Objectives of the study

- The study aims to examine the factors that contribute to early marriage among women.
- To assess the implications of early marriage on reproductive health.
- To determine how young women who marry young are affected in terms of life satisfaction by their early marriage.

3. Methods and Procedure

The data presented here was gathered using qualitative research methods, which allowed researchers to gather subjective information, notably participant perceptions, to clarify these impressions and obtain an understanding of the challenges that participants experience. Techniques like in-depth interviews, narratives, interaction observation, and case studies were used for this objective. Using qualitative phenomenological inquiry, the focus of the study was the life experiences of women who got married early and attained early motherhood. Since this research aimed to gain insight into how women in early marriage and early motherhood interpret their lived experiences, the phenomenological approach was judged to be the most appropriate research design. The phenomenological approach is data-driven and allows participants to explore and make sense of their own experiences.

3.1. Research Setting and Sampling

The research was carried out in Kuyil Thottam, a lower-class neighbourhood in South Chennai, India, which faces socio-cultural and economic challenges. The research aims to provide insights into the experiences and perspectives of women in early marriage in urban areas. The women in this area are married off young because of security risks both inside and beyond the family, such as parental characteristics and gender-based crime, and they work as domestic workers in the neighbouring regions of Santhome and Mylapore. The diverse demographics of Kuyil Thottam offers a comprehensive understanding of factors influencing early marriage decisions. **Kuyil Thottam was therefore chosen for the study.** Through in-depth interviews and observations, the study aims to understand the complexities surrounding early marriage within a specific community context. The participants were selected by employing purposive and snowball sampling techniques. Women who were married before turning 18 but are currently under 49 were included in the study. Purposive sampling allowed for the selection of participants who met specific criteria, such as being under 49 at the time of the study, being married before the age of 18, having at least one child, currently living with their spouse, and being willing to consider

taking part in the research. While snowball sampling helped identify additional participants through referrals from those already recruited, This method ensured a diverse and comprehensive sample of women with relevant experiences for the study on early marriage. Participants were chosen based on the following criteria: living in Kuyil Thottam. The interview procedure took place from April 2023 through August 2023, or five months. The researchers conducted interviews with a total of 18 participants at a location in Kuyil Thottam that was convenient for them. Participants were drawn in primarily based on their willingness to participate. The rights of the participants were always a priority for the researchers, who made sure they could leave the interview at any time or choose not to answer any questions they felt uncomfortable with. Each interview lasted an hour and a half on average. Interviews were recorded with the participants' prior permission. All recorded interviews were conducted in the local (Tamil) language. After careful analysis of the data, transcription was completed, followed by a careful reading of the text. The final step involved cross-referencing the transcribed text with the original data to ensure accuracy. This process was crucial in maintaining the integrity of the information and ensuring that no errors were present in the transcription. The text was subsequently divided into several sections along with labels and codes. Beginning with 23 codes, only five themes that addressed the main topics of the study persisted. Participants' real names have been changed to pseudonyms to safeguard their privacy.

4. Results

4.1. Socio-demographic details (Table 1)

Table 1 displays the socio-demographic characteristics of the women in early marriage in Kuyil Thottam, Chennai the study encompassed data on the age range, educational background, marital status, number of children, age gap with their partners, kind of marriage, and work status of the eighteen participants. Of the eighteen, participants, 44% were in the 18–25 age group, and 56% were in the 25–35 group. Regarding education, 28% of the population was illiterate, 38% had completed elementary school, and 33% had completed secondary school. 33% married between the ages of 16 and 18, and 67% married between the ages of 13 and 15. 100% of them gave birth to their first child between the ages of 13 and 18. Out of the 18 participants, 11% had one kid, 28% had two, 44% had three, and 17% had more than three children. The age differences of the participants with spouses were: 28% had an age difference below 5 years, 39% had an age difference of 5–10 years, and 33% had an age difference above 10 years. On the other hand, 61% of the participants were in self-choice marriages, while 39% were in traditional marriages. 17% of the respondents are homemakers, while 83% of the respondents work as domestic workers. The data analysis led to the development of five themes that covered the purpose of the study. These themes provided a comprehensive understanding and allowed for a deeper exploration of the data. They were derived from the patterns and trends observed in the data, highlighting key aspects that shaped the study's purpose.

Table 1. Socio-demographic characteristics of the studied participants

Pseudonym	Age	Education	Employment	Age at marriage	No. of children	Age difference with spouse	Type of marriage
Amali	27	Primary	Domestic help	14	3	5-10 years	Self-choice
Asha	45	Primary	Domestic help	13	4	Above 10 years	Traditional
Bindu	23	Primary	Domestic help	15	2	5 – 10 years	Self-choice
Devi	46	Secondary	Homemaker	15	3	5 – 10 years	Self-choice
Jenifer	27	Secondary	Domestic help	16	2	Below 5 years	Self-choice
Sathya	21	Secondary	Domestic help	16	1	Below 5 years	Self-choice
Sri	34	Secondary	Homemaker	15	3	5 – 10 years	Self-choice
Shreya	37	Secondary	Domestic help	15	3	5 – 10 years	Self-choice
Diana	34	Secondary	Domestic help	14	3	Above 10 years	Traditional
Indhu	26	Secondary	Domestic help	15	2	5 – 10 years	Self-choice
Mathi	32	Primary	Tailor	14	3	5 - 10 years	Traditional
Anita	29	Secondary	Domestic help	17	2	Below 5 years	Self-choice
Agalya	26	Primary	Domestic help	15	2	5 - 10 years	Traditional
Divya	24	Secondary	Tailor	16	1	Below 5 years	Traditional
Vidya	48	Primary	Domestic help	15	4	Above 10 years	Self-choice
Banu	23	Secondary	Homemaker	16	2	Below 5 years	Self-choice
Farzana	31	Secondary	Domestic help	15	3	5 - 10 years	Traditional

Socio-demographic details (Table 1)

4.2. Drives of early marriage (Figure 1)

Crime in locality, pre-marital romance and pregnancy, and poverty Drivers of early marriage may include factors such as parental traits, locality, lack of education, gender disparity, social norms, and social expectations of marriage. The respondents in the study who chose to get married by self-choice had a range of reasons for doing so, which were different from those who married in traditional or planned weddings. However, marriage is considered a mechanism to live a safe and dignified life in both kinds of marriages. According to the respondents who had a traditional marriage, Crime in the locality has made their parents get daughters married off at an early age to protect them from various harm and to safeguard their chastity. Gender-specific crime has a significant positive association with the probability of marriage of young women. Harassment, threats and physical attacks on young girls are likely to cause substantial damage to a woman's modesty. Similarly, the probability of early marriage significantly increases with the increase in gender-specific crime in the locality.

'Because young girls were harassed by the local boys and men, my parents always had wanted me to get married early. Married women are respected and are not assaulted sexually or physically. Marriage is the most used medium by families in my region to settle off a woman in a safe place.'

'A boy threatened me to love him. He threatened to throw acid in my face if I denied it. When I told this to my parents, my marriage was arranged according to their plan. My parents prioritized my safety over my education, even though they still wanted me to finish school. I lost both my adolescence and my schooling as a result of some guy's illegal behaviour.'

Male children are viewed as future assets and the family's financial cornerstone, while female children are treated as

persons to be given in marriage after a certain age. Women who married young also reported that their families typically discriminate between boys and girls (males and females) when it comes to investing in education. Their schooling does not receive priority as a Drive of early marriage Transition from adolescence to motherhood Domestic violence and abuse Knowledge of the fertile period, use of contraceptives, and termination of pregnancies. Health and overall satisfaction with life result. Because there is a bias in the amount of money spent on educating female children in the family, early marriage is the only other convenient option. Second, the respondent and their husband often have an age difference of 7-9 years in arranged marriages because their age significantly reduced the cost of marriage.

'My parents have four female children, including me and we belong to the poor category. I was 13 years old when my parents and relatives arranged my marriage. Since I'm so young and my husband is nine years older than me. My husband's side of the family covered the majority of the wedding costs.'

Premarital sexual activity is openly discussed but described by respondents as "normal" and "everywhere" in self-chosen marriages. Early marriage has been encouraged by the idea that romance and sex are something to be experienced when somebody is very young. The study's 64% of participants said they had premarital sex between the ages of 13 and 18, which led them to get married while still in their teens. For sixteen percent of the study participants, teenage pregnancy is a major contributing factor to their early marriage. The respondents claimed that a number of events, including their parents' adulterous affair, compelled them to pick a life partner and get married young in order to end their connection, as a result, they eloped with the person of their choice.

'My father's behaviour towards us was not right. He had affairs with many women but he used to abuse us with foul language in front of our neighbors. Myself and my sister have always been thinking of getting out of that house. When I fell in love with my boyfriend who was also aware of my condition at home. We eloped and got married. Just to the severe ties of my father, I got married early.'

One of the respondents said *'A man had been torturing me with his love proposal, and he is an alcohol addict. But I preferred someone else, which angered my family because I had a relationship at such a young age. So we both ran away and got married, and I feel like I got away from the guy's tortured love proposal and my family's disapproval. However, my family is now speaking to me, and relations between us are good.'*

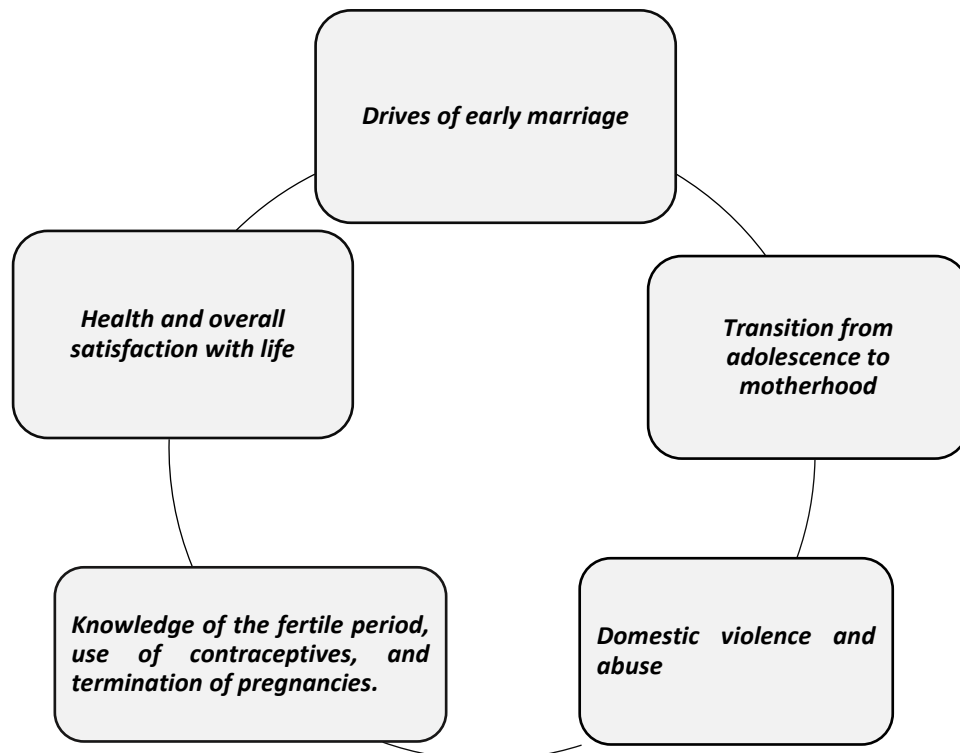


Figure 1. Emerged themes of the study

4.3. Transition from adolescence to motherhood

The transition to motherhood is an important event in a woman's life. All women involved in the study experienced increased vulnerability and faced enormous challenges as they became mothers. Most teenage girls were not yet ready to become mothers and therefore faced many difficulties. Respondents who experienced motherhood as teenagers reported feeling a greater burden of responsibility as they transitioned to motherhood. Most mothers believe that one of the main problems is increased responsibilities, including multiple tasks, lack of time and energy, and limited spending on leisure activities. After giving birth, the woman was faced with a long list of responsibilities and a significant increase in stress. This left them physically and mentally exhausted and in need of the help and care of others. Given the numerous maternal responsibilities, all respondents reported feeling stressed, trapped and unable to realize their ambitions.

'I regret getting married so early and becoming a mother so quickly. No one warned me about the consequences of early motherhood. When I was young, I only thought about romantic relationships and never about the practical problems of life that would arise when I became a mother. Even though motherhood may make you feel less self-centered and humane, you will not be happy. Ultimately, it changed my life forever, leaving me stagnant and clipping my wings.'

In response to the query, "How would you describe the shift from adolescence to motherhood at an early age?" all the respondents reported that the transition to motherhood is associated with emotional and mental suffering, including fears and worries, regret and remorse, feelings of guilt and humiliation, depression, and marital breakdown. The fears and anxieties mainly stemmed from the inability to carry out the responsibilities of raising children. They were particularly

concerned about difficulties in labour and birth, which were due to poor physical development. The emotional and physical changes have led to conflict and strained relationships with partners and family members. Negative feelings after becoming a mother were expressed in feelings of loss and regret about past lives and perceived future possibilities. Young women regret the loss of adolescence and the opportunity to continue their education. Mothers felt anxious because they felt unprepared for pregnancy. These feelings were very intense for mothers who had experienced an unwanted pregnancy and were struggling to take on the responsibilities of motherhood.

'It's not easy having a child. It is very difficult; it is better to go to school first and then find a job. Once the baby is born it is very difficult, there is nothing you can do, especially if you have no one to help you.'

'My life was doomed when I became a mother and there is no turning back. When you become a mother, you have your children dependent on you for everything and you become dependent on others and this condition continues forever. You cannot be a good role model for your children, especially if you get married soon.'

One of the main concerns raised by respondents was inefficiency. They depend on others because they lack the knowledge and skills necessary to become pregnant and give birth for the first time. Many respondents reported that they lacked the necessary skills to care for babies because they were still developing as individuals during pregnancy. They needed help in the face of new roles, increased responsibilities, health problems, rising prices and a lack of skills. Without adequate help, they had great difficulty adjusting to motherhood. Most respondents said that their husbands' lack of help with child-related tasks was a bitter experience and caused them problems in childcare and education and child-related costs.

'Marrying early is a mistake, and that too, against my parents' advice, is a serious mistake for a girl to make. I realized that during labour I had no one to help me with the newborn. I lacked knowledge about the challenges of pregnancy, birth and the postpartum period.'

All respondents reported to have received unpleasant treatment from the hospital staff because they were conceived at a younger age than the legal marriage age. The respondents expressed that they felt discriminated against and judged by the hospital staff due to their circumstances of being conceived at a younger age. This mistreatment further exacerbated their feelings of discomfort and unease during their time at the hospital.

'More than the doctors, I was scolded by the nurse and helping staff in the wardroom. It was very difficult to hear someone scolding you when you were about to deliver a baby in the labour room.'

'To avail myself of antenatal care, I increased my age and gave the wrong record. However, the staff at the government hospital found out, and they used to be harsh to me. This added so much worry and tension to me during my pregnancy, whenever I went for checkups. The constant scolding and harsh treatment from the hospital staff made an already stressful situation even more challenging.'

4.4. Domestic violence and abuse

Age differences between spouses are a characteristic feature of early marriages. Women who marry young are also illiterate, drop out of school and adhere to patriarchal gender norms. This creates power imbalances in relationships and the partner is excluded and robbed of their autonomy. Additionally, early marriage often results in limited access to education and economic independence, continuing a cycle of poverty and gender inequality that leads to domestic violence and abuse. The respondents to this study had experienced various forms of domestic violence, such as verbal, physical, and sexual, by their partners. Irrespective of their choice of marriage (Arranged or self-choice marriage), all the participants stated that they are subject to domestic violence and spousal abuse.

'It is quite common for men in this locality to abuse women verbally. My husband abuses me in front of my kids. Initially, I was very offended as ours was a love marriage. Compared to women who are physically abused, my status is better than other women in this area.'

'Ours was a love and elope marriage. I came out of my house to marry my husband at the age of 14. But he is having an affair with another girl. Still, he forces me to have sex. I feel like I'm betrayed but we have a physical relationship otherwise it will lead to physical injury.'

'To escape a love proposal from an alcoholic addict I got married to the love of my life. But things changed very quickly. Love and all won't last long in reality. My husband abuses me verbally and physically. Nothing can be done now as I wrote my fate.'

In this study, 46 per cent of respondents said they had encountered verbal abuse, and 58 per cent said they had experienced both physical and verbal abuse in their marriage. Sexual abuse refers to behaviour meant to control, influence, or manipulate your partner sexually. This type of abuse can either involve coercing your spouse into having sex with you or employing manipulation to induce them to do so. Respondents were also asked about forced sexual initiation within marriage and their recent experiences of forced sex, that is, in the 12 months preceding the interview. A substantial proportion (16% of young women) reported forced sexual initiation within marriage. Forced sexual initiation within marriage is a distressing form of abuse that violates a person's autonomy and consent. It is important to recognise that this type of abuse can have long-lasting emotional and psychological effects on the victims, impacting their overall well-being and relationship dynamics.

4.5 Knowledge of the fertile period, use of contraceptives, and termination of pregnancies.

The study found that among the respondents, proximity pregnancies and abortions were caused by a lack of knowledge about the fertile period, health precautions during the post-abortion period, husbands' careless attitude toward their wives' health, and a refusal to use any form of contraception. The study also discovered that the high rate of close-proximity pregnancies and abortions was partly caused by men's carefree attitude toward having sexual tendencies and their restrained access to contraceptive options. Furthermore, the respondents' decisions about contraception were found to be influenced by cultural norms and societal pressures related to family planning decisions. 61 per cent of the respondents had aborted their second child as they got conceived quickly after the first child. The decision to terminate the pregnancy was taken by women, and 46 per cent reported that it was taken by both husband and wife, and 21 per cent reported that the husbands

wanted them to terminate the pregnancy. 74 per cent of the terminations of pregnancies were done at the professional level. Few respondents want to disclose the process of termination. It is to be noted that the use of contraception is poor, as the respondents reported that their partner did not want to use it.

'I missed my periods for almost 10 months after my first baby. Since I missed my periods, I thought I wouldn't be able to conceive until my periods returned. But I was conceived with my second baby. Due to our financial situation and also to have a space between the first and second child, we aborted the baby.'

'My husband doesn't like to use contraceptives even after I have asked him to use it several times. I have had three abortions to date and three living children. I am afraid to use contraception like copper-T as I have been warned by my peer about its side effects.'

'Both myself and my husband decided to abort the baby due to our financial status. As we already have the desired number of children, we would not want another baby.'

'Abortions have deteriorated my health but I don't talk about it to anyone as it is quite a common condition here. Women keep carrying on their regular duties with multiple pregnancies and complications. It won't make me any special if I complain about my health'

4.6 Health and overall satisfaction with life

All of the study's participants were pregnant with their first child in their teens and had their first child on average when they were 15 years old. Numerous health problems have been connected to early motherhood. 16 per cent of the respondents reported having a loss of pregnancy (first baby). 43 per cent of the respondents reported that they opted for the termination of pregnancies in the first five years of their marriage. Stillbirths were reported by two respondents. Overall, about 45.6 per cent of women with abortion histories used abortion as a means of birth spacing, as they were not ready for a child at that time. Another 26.3 per cent of them had undergone abortions to limit family size as they did not need any more children. Stillbirth or child loss were experienced for the first baby only. These issues may be related to pregnancy, childbirth, breastfeeding, or the postpartum period. The testimonials from participants indicate that some women experienced gestational hypertension, anaemia, haemorrhage, eating disorders, and hyperemesis gravidarum throughout their pregnancies. A cesarean birth due to problems, a difficult birth, disruption of the regular childbirth process, and the physiological repercussions of hard labour were experienced by most of the participants. The study found that early marriage greatly impeded women's hopes and dreams, making childrearing and raising children their entire existence. Pregnancy and becoming a mother provide challenges for women in their early marriages. Their physical health has declined as a result of several pregnancies and abortions, but many individuals fail to address their mental health. Many respondents expressed feeling trapped in their roles as mothers, unable to pursue their own personal and professional goals. Furthermore, the lack of support systems and resources for mental health issues further exacerbates the challenges faced by these women in early marriages.

'I wish that I can go back in life and continue my education and live my adolescence again. Marrying

early is never the right choice as it changes every single thing in life and suffocates you. There is always regretful thinking that is running in the back of my mind for the bad choices I made in my life during my youthful days. However, nothing can be done now. I need to protect my children from the mistakes I made.'

All of the employed participants in this study work as domestic servants, such as cooks, top workers, and babysitters, and they all stated that their early marriage had left them frustrated with their lives. The aim and meaning of life, as well as how much one should strive for or deserve, are determined by the social circumstances they expressed.

'I have always wanted to become a teacher. If only I had been born in a normal place, I think I would have achieved my dreams. Women like me are made to prefer marriage for our survival purposes. In such a condition, how can one think of getting educated or to lead a decent lifestyle?'

'If only safety was provided for women, I would have not married early in life. However, I will make sure that my children are not married early like me. Education is critical to make a woman stand for herself.'

These participants expressed a strong desire for better opportunities and the chance to pursue their dreams and ambitions. They believed that breaking free from societal expectations would lead to a greater sense of fulfilment and satisfaction in their lives. Many believed that getting married young was a hasty decision that left them ignorant and imprisoned them to live in poverty for the rest of their lives. They emphasized the value of education and thought that learning during their teenage years would have provided them with the knowledge and abilities to change their situation. Furthermore, they expressed a collective determination to break the cycle of poverty and create a brighter future for themselves and their families by educating their daughters and not marrying their daughters early. They understood that education would provide their daughters with opportunities for better jobs and financial stability. Additionally, they recognised that by delaying marriage, their daughters would have more time to focus on their education and personal growth, ultimately leading to a more prosperous and fulfilling life.

'I had three children before I turned 35 and now, they are all grownups and working. From this angle, I will say that I am happy for my children to be settled when I am in good shape. However, my husband is having an affair with another woman, this makes me sad as to what is the meaning of love. I don't know if I am happy or unhappy.'

'I would never advise my daughter to marry early. I always tell my daughter that even if she is loving anyone it is important to prioritize your education and career before settling down in marriage. I very often tell her not to become like me(mother).'

'By waiting until you have established yourself professionally, you will have a stronger foundation for a successful and fulfilling marriage. Remember, marriage is a lifelong commitment, and it's crucial to be prepared both emotionally and financially before taking that step. Hence, I will not give my daughter in an early marriage how much the guy may be rich.'

5. Discussion

The study finds that age at first marriage significantly affected empowerment at the household level in terms of childbearing, contraceptive use, and decision-making power. Women who married at a younger age were more likely to have higher fertility rates and less or no control over their reproductive. The study clearly showed that women were married early either by their parents or by self-choice in search of a safe life. The locality they stayed in has a very influence on the preference for early marriage in both forms of marriage. However, in many cases, early marriage does not guarantee a good life as women in early marriage are exposed to another acceptable form of crime within their marriage ties called 'Domestic violence'. Early marriage as a crime perpetuates another crime. On the other hand, early marriage seriously impacts reproductive health which encompasses the physical and mental health of the participants in this study. Women who married early were more likely to have impaired reproductive health due to multiple pregnancies, infant loss, and effects on the health of their children. Analyses clearly show that early married women are characterized by lower levels of education, poorer socioeconomic status and limited exposure to the media. These factors limit women's autonomy in decision-making and participation in family life, affecting their health at all levels. Study participants had higher fertility, shorter birth intervals, and more unplanned pregnancies, miscarriages, and stillbirths, which increased the risk of pregnancy complications and reproductive health risks. Impaired health increases the financial burden on families and the risk of poverty. Additionally, the cost of medical treatments and medications can quickly deplete a family's savings, pushing them closer to poverty.

6. Conclusions and Recommendations

The Indian government enacted a law in 1954 that prohibited parents from getting their daughters married before they turned eighteen. It is estimated that at least 1.5 million girls under the age of 18 are married in India today. As a result, a large proportion of women marry before reaching legal marriage age, indicating that the effective implementation of marriage age laws in some Indian states is still far from satisfactory. A combination of social and family conditions leads parents and young women to prefer early marriage for their daughters, both within traditional marriage and voluntary marriage. In both cases, "security" is the main reason for early marriage. In reality, marrying a girl affects the health of young married women and their children. Since early marriage limits women's educational opportunities and denies them access to work, the results also have implications for poverty reduction efforts. Early pregnancies and marriages result in poor reproductive health in women, which negatively impacts children's health and places a burden on the family budget and children perform poorly in school, further limiting their ability to engage in income-generating activities. Adolescent moms' reproductive health problems need to be given more attention since this might aid India in achieving the Millennium Development Goals. Girls are offered financial incentives in several Indian states, including Andhra Pradesh, Haryana, Karnataka, Madhya Pradesh, Punjab, Rajasthan, and Tamil Nadu, to delay marriage until they turn eighteen. These monetary rewards have shown to be successful in lowering child marriage and increasing female education. By implementing such policies and effectively monitoring them, women can become more empowered and secure their right to education and a better future. Additionally, educating families about the importance of delaying marriage and providing income-generating opportunities can help families understand the long-term benefits of allowing girls to reach adulthood before marriage. It's also important to educate parents about the negative effects of child marriage. In Indian society, parents play a very important role in choosing a partner and setting the wedding date. The direct and indirect consequences (lower

education levels, fewer employment opportunities, increased pregnancy-related stress, poor maternal health, experience of infant loss, poor nutritional status of mothers and children) should be made aware to the parents to make rational decisions about their daughters' marriage at legal age. On the other hand, toxic masculinity leads to violence and harassment towards women. From a policy perspective, law enforcement organizations ought to make a concerted effort to implement a law that penalizes offenders who commit crimes against women based on their gender. This will reduce the number of crimes committed against women, promote their integration into society, and enable them to take advantage of more comprehensive female education programs, improved employment prospects, and sources of income. This may help in postponing marriage until the women concerned are older. This will result in economic freedom for girls and also increase the poor health status of women and their children.

The study's key findings show that women who marry young have a higher risk of experiencing domestic abuse and a lower likelihood of finishing their education. Furthermore, early marriage frequently results in greater rates of difficulty in child birth and fewer options for women to pursue socioeconomic stability. Early marriage causes many challenges for women since it interrupts their physical development, which negatively impacts their mental health from an early age. Protecting the rights and well-being of young women requires policies and initiatives to address these challenges. These findings highlight the urgent need for policies and programs aimed at preventing early marriage and supporting the well-being of young women. Access to services and education that enable young women to make knowledgeable decisions about their reproductive health and future should be prioritized.

7. Limitations and Future Research Directions

This study, while providing valuable insights into the life experiences of women in early marriages in Chennai, India, acknowledges certain limitations that must be considered when interpreting the findings. Studies on women who marry young remain essential to comprehending and resolving the complex issues they encounter. Future studies should concentrate on comprehensive strategies that consider early marriage's long-term effects on women's health, education, economic empowerment, and social well-being in addition to its immediate effects. To ensure that interventions and policies are not only evidence-based but also culturally sensitive and empowering, participatory research methodologies will give priority to the voices and experiences of women themselves.

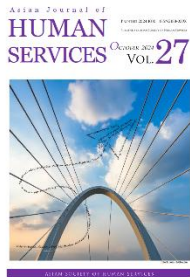
8. Declaration of Interest

The authors report there are no competing interests to declare.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

Stress and Coping Processes in Childcare Workers Caring for Children with Special Needs

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ABSTRACT

This study identifies the stress experienced by childcare workers and their stress-coping mechanisms when caring for children with special needs. Due to the current focus on inclusive education, the number of children with special needs has been increasing, leading to an increase in the importance of understanding childcare workers' stress management. Therefore, this study aims to elucidate the stress experienced by childcare workers who care for children requiring special support. Semi-structured interviews were conducted with 15 childcare workers at daycare centers and certified childcare centers in the Kanto region of Japan. The results showed that the three main childcare worker stressors were difficulties in providing individualized support, classroom management, and supporting the parents. These stressors were influenced by the lack of appropriate responses to childcare, staff shortages, and time constraints. Relationships with colleagues were found to play an important role in coping with stress, suggesting that good relationships reduce stress and improve childcare quality. However, it was also found that different ways of thinking and peer pressure could increase childcare worker stress. To overcome these challenges and promote inclusive education, specific support to improve the quality of care for children, develop communication training, and provide parental support in the workplace could be effective. This study contributes to a better understanding of stress in childcare workers for children with special needs.

Keywords: Children with special needs, Childcare workers, Stress, Stress coping

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Received: 2024/02/28 ; *Revised:* 2024/07/01 ; *Accepted:* 2024/09/17 ; *Published:* 2024/10/30



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1. Introduction

1.1. Introduction

In Japan, inclusive education practices to encompass all children with special educational needs regardless of their disabilities have been recommended^{1,2)}. A survey in 2018 found that 83.2% of childcare facilities had children who required special support, and this number was increasing³⁾. As the number of children with special needs rises, concern about the burden on childcare workers also rises^{4,5)}.

Therefore, this study identifies stressors faced by those caring for children with special needs and examines their coping mechanisms. Identifying factors that could reduce stress in these childcare workers can render needed support, provide valuable information for relevant training programs' development, and improve the quality of childcare.

Additionally, this study focused on childcare workers years' of experience and their types of institution through conducting interviews with a diverse range of workers. For Japanese nursery schools, research on a broad spectrum of childcare workers' stressors and coping strategies has not yet been conducted, so this study fills a gap in the literature.

1.2. Literature Review

Previous studies have predominantly focused on children requiring special support, such as those with developmental delays or suspected developmental disorders^{2,4,5)}. In 1994, UNESCO adopted the 'Salamanca Statement,' which expanded the scope for children requiring special educational needs to include those with disabilities, gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic, or cultural minorities, and children from other disadvantaged or marginalized areas or groups⁶⁾. Therefore, this study defines children requiring special support from childcare workers as those with developmental delays and disabilities, and those from impoverished, abused, or non-Japanese backgrounds.

Lieber et al. surveyed childcare workers and found that many believed that inclusive education exposes children with disabilities to peer models and fosters learning opportunities. The inclusion of these children also has positive effects on nondisabled or disadvantaged children because they learn to assist others and accept differences⁷⁾. This perception among childcare workers has been supported by subsequent studies^{8,9)}, which has prompted the promotion of inclusive education in Japan¹⁰⁾.

However, negative perceptions and concerns about inclusive education have been linked to childcare worker stress¹¹⁻¹³⁾. Shiratori and Kojima identified several stressors associated with inclusive childcare, such as difficulties in child management, dealing with parent and classmate relationships, lack of professional expertise, childcare record burdens, and inadequate support from colleagues¹²⁾. Therefore, understanding the mechanism used by childcare workers to cope with stress and identifying their stressors is crucial when seeking to reduce their stress levels.

Baumgartner et al. conducted group-focused interviews with ten childcare workers and categorized the coping strategies into emotion-focused, problem-focused, and avoidance-focused¹⁴⁾. Kiso found that there was a reduction in childcare workers' distress when childcare activities were adapted to cater to children who required special support⁴⁾. However, addressing the distress related to the relationships with 'concerned children' and their parents remains challenging for individual childcare workers; therefore, more research on less experienced childcare workers is needed¹⁵⁾.

As dealing with work stressors requires changes to social interactions, confidence, and motivation, specific stressors are often difficult to identify, especially when the stress-coping processes are often deemed more important than the

outcomes¹⁶⁾. Because Japanese childcare facilities have a standard childcare ratio of one provider for every thirty 4-to 5-year-old children, it is difficult to balance individual support for children requiring special assistance and group support¹⁷⁾.

Reducing childcare worker stress can provide better support for the children and also benefit their professional growth^{18,19)}. Because of the increase in dual-income households in Japan, childcare facilities, such as daycare centers and certified childcare gardens, are the most used preschool facilities in Japan. Therefore, this study focuses on childcare workers from these facilities.

Overall, understanding and addressing childcare worker stress when caring for children requiring special support is crucial to ensure that they are provided with effective support and to encourage professional development for childcare workers.

Japanese preschool facilities are divided into education-based kindergartens for children aged three to elementary school age, all of which are under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), and nursery schools and certified childcare centers for ages 0 to pre-elementary school age, which are child welfare facilities under the jurisdiction of the Child and Family Agency. However, the number of children attending nursery schools and certified children's centers is the largest²⁰⁾; therefore, this study focused on childcare providers working in nursery schools and certified childcare centers (excluding kindergarten-type centers).

2. Research methods

2.1. Design

Coping with stress is complex as coping mechanisms can vary depending on the stressors, individual differences, organizational policies, and the characteristics of the children²¹⁾. As this study considers it important to understand the interactions of multiple stress coping factors, the identification of the childcare workers' stress coping mechanisms was explored using a qualitative research interview method.

2.2. Survey method

Semi-structured interviews were conducted with childcare workers currently employed to care for children in nursery schools and certified childcare centers in the Kanto region, Japan.

2.2.1. Participants

The sample was four male and 11 female childcare workers. The longest work experience was 25 years and the shortest was 1 year, with the mean being 8.46 years.

2.2.2. Interview Procedures

Seven interviews were conducted face-to-face and eight were conducted online on Zoom. The interviews first gathered information on the participant's characteristics, such as age, gender, class, and years of experience, after which the interview guide was followed.

The childcare workers who were interviewed face-to-face were given a verbal and written explanation of the study purpose before the interview began and were asked to complete a written consent form, which included permission to record the interview using an IC recorder. The face-to-face interviews were conducted in the break room or training room

in the late evening on weekdays and on Saturday afternoons in the preschool in which the childcare worker worked, at which time no children or parents were present.

The childcare workers interviewed online were sent the study description and consent form in advance by mail. The interviews were scheduled on weekday evenings and weekends, with the Zoom setup being based on the participants' preferences.

2.2.3. Interview details

Each childcare worker interview was approximately 20 minutes. After explaining the study and obtaining permission, each interview was recorded. When the topic of children with special needs was discussed, the participants were told that the target children included those with developmental delays and disabilities, and those who were impoverished, abused, from non-Japanese families, and their respective families.

The following interview guide was used for the semi-structured interviews.

- 1) The number of children in your current classes and the number of childcare workers.
- 2) The children with special needs that you have cared for in the past.
- 3) The number of children in your current class who need special support.
- 4) The stressors you experienced when caring for children with special needs.
- 5) The methods you use to cope with these stressors?
- 6) The childcare methods you feel have been effective.
- 7) The environments you establish when taking care of the child?
- 8) Your relationship with the children's parents.
- 9) Your relationship with coworkers.
- 10) The challenges faced when taking care of the children.
- 11) The documents required (individual support plans, etc.).

The participants were also encouraged to discuss any other concerns.

2.2.4. Survey period

The interviews were conducted between November 2020 and February 2022.

2.3. Data analysis and description

The Modified Grounded Theory Approach (M-GTA) was used for the analysis²²⁻²⁴⁾, with the main analysis theme being 'the stress coping mechanism being used when caring for children with special needs,' and the analysis focal person being 'childcare workers who care for children with special needs.'

The data revealed that the more experienced childcare workers had provided greater and more specific details. Therefore, we first analyzed the responses from childcare worker O, who had the most years of experience. Because of our theme and focal person, the analysis focused on the more relevant data to define the concept names and develop the associated definitions. When we compared the definitions with other data, we looked for similar or opposite examples, and each time something came to mind, we wrote it down in a theoretical memo. As the continuing data analysis identified new concepts, an analysis worksheet was created. Other variations were also searched for in the data, which were then added to the

variations on the analysis worksheets. If there were only a few of certain specific examples, the concept was not considered valid. To prevent arbitrary interpretation bias, counterexamples were examined along with similar examples for the generated concepts to confirm their validity from a comparative perspective. All resulting processes were also entered into a theoretical memo. After examining the relationships between the generated concepts and the other concepts, categories and subcategories were generated. The analysis process for determining the relationships between the categories is summarized in a result diagram.

2.4. Ethical considerations

In the interviews, the participants were informed in writing and orally that their personal information would be protected, great care would be taken to ensure that they would not be disadvantaged, that they could withdraw their participation at any time, and that they would not be disadvantaged even if they did not agree to participate. We also explained that the information gained from the survey would not be used for any purpose other than research purposes and that the collected personal information and voice data would be disposed of immediately after the required storage period had elapsed. This study was conducted with the approval of the Research Ethics Committee of Teikyo Junior College (Approval No. 21).

3. Results

3.1. Participant characteristics

The participants' characteristics are shown in Table 1. Four participants (26.70%) were male and 11 (73.30%) were female. Seven (46.70%) were in their 20s, two (13.30%) in their 30s, four (26.70%) in their 40s, and two (13.30%) in their 50s or older. The longest and shortest working experience was 25 and 1 year, respectively, with a mean of 8.5 years.

All childcare workers had experience caring for children with special needs; however, childcare workers E, I, and L had had experience in the past but were not currently caring for any children with special needs.

Table 1. Participant characteristics and experience in caring for children with special needs

Target g	Age	Gender	Class	Experience Years	Establisher	Interview Time (minutes)	Interview Method	Childcare and other experiences with children with special needs
A	20s	female	0 + free	1	Stock Company	12	online	There is a child in the toddler class that I am concerned about although there is no diagnosis of a disability.
B	20s	male	4	1	Stock Company	14	online	There is a child in the class who is not diagnosed with a disability but is of concern to me.
C	20s	female	0	1	Public	14	online	There are physically handicapped children and non-Japanese children in the class.
D	20s	female	4	2	Social welfare service corporation	11	F to F	There are children in the class who have been diagnosed with a disability and there are children in the class who are not diagnosed with a disability but who are of concern to me.
E	20s	female	0	3	Social welfare service corporation	17	online	There is no child in the current class, but there was one in the past.
F	20s	female	5	4	Social welfare service corporation	17	F to F	There are children in my class who have been diagnosed with a disability and children who I am concerned about who have not been diagnosed.
G	50s	female	4	4	Social welfare service corporation	23	F to F	There is no child in the current class, but there has been one in the past, and I have had experience working in other positions.
H	20s	male	4	4	public	21	online	There is a child in the class who is not diagnosed with a disability but is of concern to me.
I	50s	female	0	8	social welfare service corporation	11	F to F	There are no children in the current class, but I have some experience. There has also been a time when not working as a childcare worker.
J	30s	female	4	10	Social welfare service corporation	21	F to F	There are children in the class who have been diagnosed with a disability and there are children in the class who have not been diagnosed with a disability but who are of concern to me.
K	40s	female	4	11	Social welfare service corporation	15	F to F	There are children in the class who have been diagnosed with a disability and there are children in the class who have not been diagnosed with a disability but who are of concern to me.
L	30s	female	1	11	Social welfare service corporation	14	F to F	There is no child in my current class, but there was one in the past.
M	40s	male	4	18	public	24	online	There is a child in my class who has been diagnosed with a disability, and there has been more than one in the past.
N	40s	female	2	24	public	23	online	There are children in my class who need help, and there have been more than one in the past.
O	40s	male	4	25	public	23	online	There is a child in my class who has been diagnosed with a disability, and there has been more than one in the past.

3.2. Results analysis

Eleven concepts were generated from the analysis of childcare worker O: trust in diagnoses; uncertain early childhood education without clear answers; lack of acceptance; sharing with parents; anxiety about coworker evaluation; understanding difficulties; balance between group and individual; shared understanding of children; communicating childcare methods; confidence in childcare; and differences in childcare policy from coworkers. During the analysis, the number of generated concepts gradually decreased, and no concepts were generated by childcare workers E, C, B, and A. Since the analyses converged to some extent and no new concepts were generated from the data, theoretical saturation was reached. When all analyses were completed, 37 concepts had been identified.

Next, to prevent arbitrary interpretations, we compared counterexamples with the generated concepts, and to ensure the completeness of the generated concepts, we examined concepts that did not have more than one variation. As a result, the concepts of ‘childcare that does not try too hard’ and ‘changes in what is required of childcare providers’ were deleted. As there were similar variations in the other concepts, the concepts were repeatedly integrated or renamed after reexamination. Subcategories were also generated from the multiple concepts. Therefore, in the end, there were 30 concepts, four categories, and 10 subcategories. The concepts are denoted as follows: categories by { }, and subcategories by []. The concepts are listed in Tables 2 and 3, and examples of each concept are shown in Figure 1, from which the following storylines were developed.

3.3. Storyline

Childcare workers are aware of {accumulated stressors} such as [difficulty in individual support], [challenges in classroom management] and [difficulty in parental support]. For these {accumulated stressors}, an {evaluation of stressors} occurs. This process is influenced by the {relationship with coworkers}. When trusted coworkers are available, motivation is experienced related to [this is the kind of child this child is], [sympathy for difficulties], and [personal growth], which then becomes a virtuous circle born from cooperation. On the other hand, if the childcare workers feel [difficulties in working together], they feel these are challenges beyond a personal resolution. The recognition of being outside one's expertise and trust in the diagnostic labels became a [resolution within oneself].

Table 2. Conceptual diagram for the childcare workers' stress coping process (1)

No.	conceptual name	Definition
Category 1: {Accumulated Stressors}		
1	Childcare with no right answer	Proceed with the care of children requiring special support without clear guidelines or answers.
2	Shortage of manpower and time	Feeling pressure and incompleteness due to insufficient manpower and time.
Subcategory: [Difficulty in Individual Support]		
3	Lack of strategies	Not knowing how to proceed with early childhood education.
4	Difficulty dealing with aggressive children	Experiencing stress when caring for children who exhibit behaviors such as hitting, kicking, throwing objects, biting, or tantrums.
Subcategory: [Challenges in Classroom Management]		
5	Balancing group and individual needs	Difficulty simultaneously managing both group early childhood education and individual support.
6	Everyone is together	Inability to work in groups or listen to childcare workers
7	Unfair relationship	Feeling that they are not getting to know the children in their class well enough because their hands are occupied with the children with special needs.
Subcategory: [Difficulty in Parental Support]		
8	Non-acceptance of the child's behavior	Feeling frustrated by the inability to convey the facts clearly to parents who do not accept their child's behavior.
9	Misunderstandings	Parents misunderstand the childcare worker's message; therefore, the childcare worker's intention is not conveyed.
10	Unacceptable thoughts and actions	Feeling that the ideas or actions of the parents are not beneficial to the child.
Category 2: {Evaluation of Stressors}		
Subcategory: [Resolution within oneself]		
11	Trust in diagnostic labels	Being able to engage with children diagnosed with certain conditions with acceptance and understanding.
12	Recognition of being outside one's expertise	Feeling that caring for children needing special support is beyond one's professional expertise.
Subcategory: [Challenges beyond personal resolution]		
13	Not sure what to do anymore	Experience panic when efforts fail to yield results, leading to uncertainty about what to do.
14	Indigestion due to things not working out	Regret the inability to engage effectively in certain situations.
15	Sense of powerlessness when things do not go as planned	Despite efforts and deliberations, early childhood education does not progress as expected, leading to a feeling of inadequacy.

Table 3. Conceptual diagram of childcare workers' stress coping mechanisms (2)

No.	conceptual name	Definition
Category 3: {Relationships with Coworkers}		
Subcategory: [Trusted coworkers are available]		
16	Personal support	Availability of personal support in times of need
17	Counseling	Being able to consult and communicate with supervisors and coworkers in times of need.
18	Sharing burdens	Being able to share with coworkers the difficulties and burdens arising from childcare activities.
19	Childcare that progresses in unison like a harmonious breath	Childcare proceeds smoothly without having to explain anything to each other.
Subcategory: [Difficulties working together]		
20	Peer pressure from a coworker	Feeling forced or coerced into a certain way of thinking or performing childcare responsibilities.
21	Coworkers with different ways of thinking	Not understanding what a coworker is thinking, or even if you do understand, dealing with the difference.
22	Anxiety about evaluation by coworkers	Feeling anxious or pressured by worrying about how coworkers evaluate you, avoiding coworkers, or constantly worrying about what your coworkers think of you
Category 4: {Virtuous Circle Born of Cooperation}		
23	Motivation	Feeling that it is worthwhile to care for children with special needs and wanting to work harder and have more fun in childcare
Subcategory: [This is the kind of child this child is]		
24	Supportive Accompaniment	Accept and become close to the child in whatever form that child may be.
25	Accept the truth as it is	To understand children as they are, including their difficulties, and to understand that this is the kind of child they are.
Subcategory: [Sympathy for difficulties]		
26	Understanding the difficulties	To understand the child's difficulties, such as the things the child is suffering from, the hard feelings the child has, and the problems the child has.
27	Sharing with the parents	Ability to discuss and understand the characteristics and needs of the child with the parents.
Subcategory: [Personal growth]		
28	Self-confidence	Being confident that I have a positive impact on the children in my care.
29	Realization of the results	Achieve outcomes such as building trusting relationships with children, children spending time calmly, and childcare running smoothly.
30	Widening of tolerance	Widening of perspective through training and widening of tolerance for problematic behavior through experience.

3.3.1. Category 1: {Accumulated Stressors}

Childcare workers face a lack of strategies and difficulties in dealing with aggressive children when taking care of children who need special support and realizing the [difficulty in individual support]. When everyone is together, the need to balance group and individual needs is disrupted. As a result, the children who need special support are taken care of, but childcare workers feel guilty about their unfair relationships with the children who are not being taken care of, at which times, they realize [challenges in classroom management]. In addition, they also feel the [difficulty in parental support] when they see the non-acceptance of the child's behavior by the parents, misunderstandings due to the lack of communication about the childcare worker's intentions, and unacceptable thoughts and actions by the parents toward their children. Because of this, they feel that childcare with no right answer, and they continue to search for a new childcare method. The shortage of manpower and time makes it impossible to give careful attention to the children, and these factors become {accumulated stressors}.

3.3.2. Category 2: {Evaluation of Stressors}

Recognition of being outside of one's expertise in caring for children with special needs and trust in the diagnostic labels allows them to become involved with the children who have a disability diagnosis, and these difficulties lead to a [resolution within oneself] to deal with the stressors. However, when they fail to cope with the stress and the child suddenly bursts into tears or panics, they not sure what to do any more. Childcare workers think in various ways for the sake of the child, but when the childcare does not proceed as planned or as they had envisioned, they feel inadequate, and the longer this state persists, they develop a [sense of powerlessness when things do not go as planned]. For children who cannot be cared for responsibly until the end, such as when a child leaves school suddenly, gives rise to feelings of [indigestion due to things not working out], regret about not being able to relate to the child well, and [challenges beyond personal resolution].

3.3.3. Category 3: {Relationships with Coworkers}

In {relationships with coworkers}, childcare that progresses in unison like a harmonious breath is possible when [trusted coworkers are available], at which time the childcare workers feel they can obtain personal support from managers, senior staff, and coworkers. Counseling relationships with management and senior staff enable them to ask for help in troubling situations and to leave problems with the parents to manage. Sharing the burden is felt when the workers watch the children in turn so that the burden is not concentrated on one childcare worker. On the other hand, the workers also feel peer pressure from coworkers when childcare views and practices are imposed and there are difficulties in working together with coworkers because of their different ways of thinking. As a result, the childcare workers feel anxiety about being evaluated by coworkers and disappointment in themselves for not acting for the sake of the coworker rather than the child.

3.3.4. Category 4: {Virtuous Circle Born of Cooperation}

When [trusted coworkers are available], supportive accompaniment is provided, which simply accompanies the child no matter what they are going through. As a result, it becomes possible to accept the truth as it is, that is, accepting the child's difficulties, and understanding that [this is the kind of child this child is]. In addition, sympathy for the child's difficulties is aroused, such as what the child is suffering from and whether they are having hard feelings or are in trouble. Sharing with the parents, which enables the childcare workers to discuss and understand the child's characteristics and needs, leads to an understanding of the difficulties for both the child and the parents. As a result, a relationship of trust is formed with the child, the child spends time calmly, and the childcare goes smoothly, leading to a realization of the results. In addition,

training broadens the childcare workers' perspectives, and these experiences lead to a narrowing of their tolerance for troublesome behaviors. Self-confidence and [personal growth] increase when the involvement has a positive impact on the child, which increases motivation and forms a virtuous circle born of cooperation.

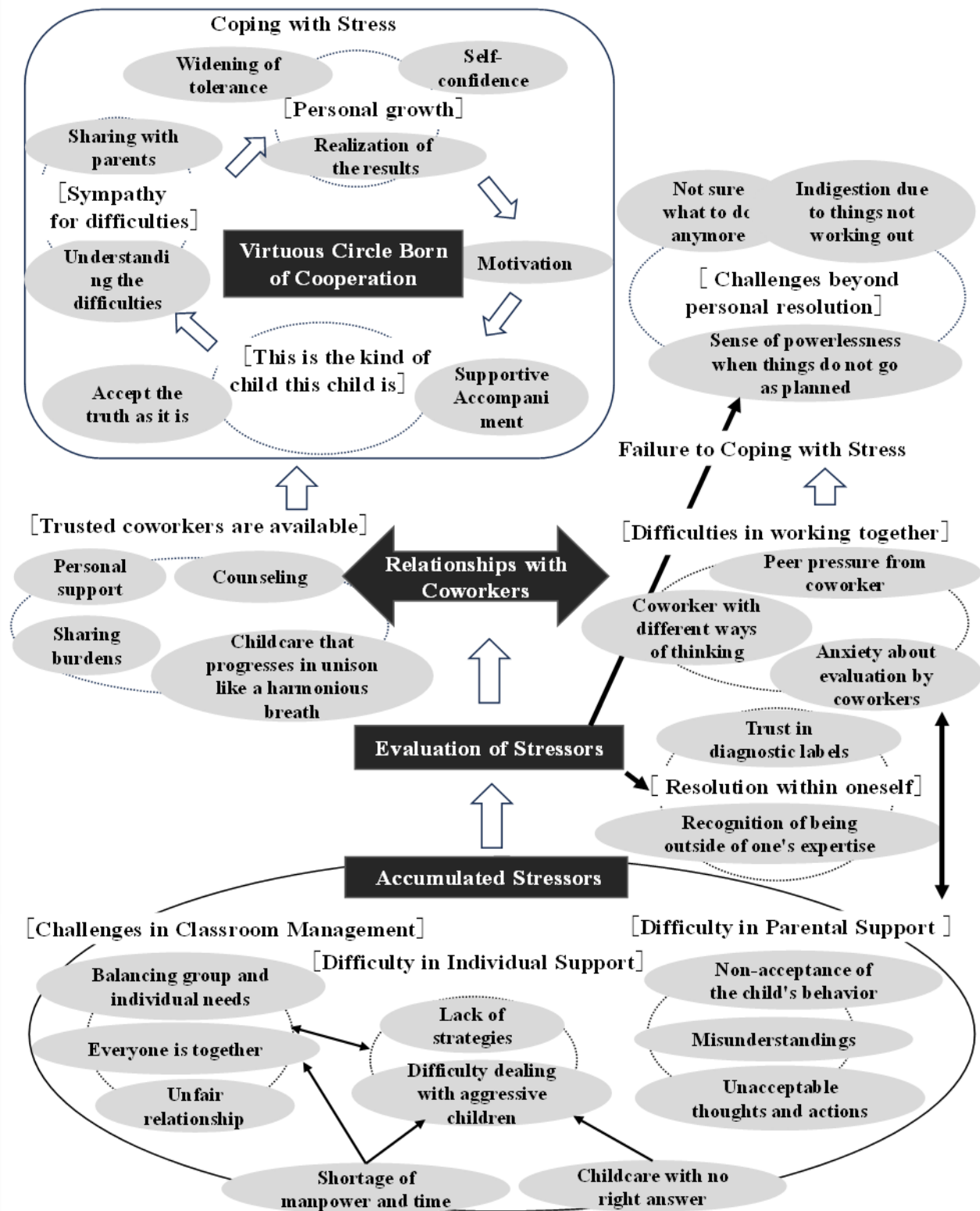


Fig 1. Resulting diagram of the processes by which childcare workers coping with stress.

4. Discussion

This study identifies the types of stresses experienced by childcare workers dealing with children with special needs and the processes by which these stresses are not being coped with. The results of this study are discussed below based on psychological stress theory.

The stressors identified in this study were [difficulty in individual support], [challenges in classroom management], and [difficulty in parental support], which were also identified in Kiso^{4,15}. This study finds that the childcare workers' stress was due to the accumulative effects of childcare with no right answer and a shortage of manpower and time.

It was also shown that the {relationship with coworkers} played an important role in the effects of the accumulated stressors on the {evaluation of stressor}. Nislin et al. suggested that when childcare providers encounter stress, feeling appreciated and respected by both coworkers and their supervisors²⁵ is important. The interviews gave rise to statements such as 'even if there are children who are having a hard time, in the end, it is not such a burden if the relationships between childcare workers are good (childcare worker I)' and 'no matter how hard the children are, if the adults can say to each other that they are having a hard time, it is comforting to hear that they are taking a break' (Child care worker K). Therefore, it became clear that childcare workers need to have good relationships with other childcare workers, such as being able to counsel trusted coworkers about childcare methods and burdens and having other teachers join the class to provide support when individual support is needed.

In addition, this [trusted coworkers are available] factor became the basis for changes in the way the child was dealt with, leading to an understanding that [this is the kind of child this child is] and [personal growth] through an understanding the difficulties, a widening of tolerance, a realization of results, and an increase in self-confidence, all of which led to the creation of a virtuous circle.

Therefore, the evaluation of the childcare workers' stress coping strategies found that there is positive relational coping²⁶, which indicates that when caring for children with special needs, good relationships between childcare workers can be the foundation for coping with stress and the development of a virtuous circle born of cooperation, which can lead to improvements in the quality of childcare. Based on this, the training and education of childcare workers should focus not only on how to support the children but also on building relationships with coworkers and teamwork.

The concepts lack of strategies and childcare with no right answers were identified as childcare worker stressors. Igarashi concludes that a lack of strategies in caring for children with special needs can cause perceptive differences between childcare workers and their support methods²⁷. Childcare Worker O claimed that 'some stated that childcare workers must be experts on all children;' however, the concept of 'recognition of being outside of one's expertise in the care of children with special support needs' also emerged. This type of thinking was classified as negative stress coping, at which time the child loses the motivation to solve problems and tries to avoid facing stressful situations. Kato claims that negative stress coping further exacerbates stress reactions and can adversely affect mental health²⁶. For these reasons, it is important to use traveling consultation services to receive advice from experts and provide opportunities for childcare workers to reflect on childcare between themselves.

In addition, some childcare workers felt significant difficulties when there were 'coworkers with different ways of thinking and peer pressure from coworkers,' which led to [difficulties working together] and added to the {accumulated stressors}. Therefore, because of their anxiety about their relationships with coworkers, they adopted negative stress coping strategies, such as avoiding relationships with coworkers and refraining from consulting them. As a result, when the

[challenges beyond personal resolution] continued, it led to a sense of powerlessness when things did not go as planned. This could be perceived to be a failure to cope with the stressor and a need for proactive solutions, as failure to cope appropriately with stress over the long term can seriously damage mental and physical health.

Therefore, the relationships between childcare workers who can work together are important for coping with stress in inclusive education environments. Childcare worker D, who had no children with a diagnosed disability in their class but had several children who needed special support, stated that they were concerned about their relationships with coworkers, which led them to follow the other teachers' wishes and not prioritize the children. Childcare worker O also stated that she refrained from the kind of relationship she wanted because of her interpretation that some coworkers might not think it was a good idea to be attentive to one child at a time. In these episodes, the childcare worker also refrained from communicating or discussing their feelings with coworkers because of their self-interpretation. This is classified as nonassertive self-expression, which is a stressful self-assertion characteristic²⁸⁾. This nonassertive self-expression can be harmful to the mental health of the childcare worker and the children.

5. Conclusion

When promoting inclusive education, it is important to be aware that differences can easily arise in the way that childcare workers respond to each other. It is also important to always check the intention of the other person's responses. Parents of children with special needs also often have a difficult time accepting their children's appearance. The results of this study suggest that there are strategies for dealing with childcare workers' stress, such as being sympathetic to the understanding of the difficulties of children and their parents and sharing the child's progress with their parents.

5.1. Limitations and future challenges

There are limitations in interpreting this study, as childcare worker stress is influenced by many factors, including family environment, other personal factors, and current mental health status. In addition, as the study focused on the stress and coping strategies of 15 childcare in a specific region and specific situations, it is unknown whether similar results would be obtained in other regions and different situations. Therefore, a study with a larger sample is warranted.

Acknowledgments

We would like to express our sincere thanks to the teachers at the preschools who cooperated with our research and to the principals who agreed to cooperate with our research.

Funding

None.

Conflict of interest

None.

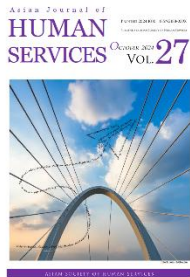
Note

This paper is based on the doctoral dissertation submitted to the University of Tsukuba in March 2024.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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ORIGINAL ARTICLE

Verification of the Reliability and Construct Validity of the CRAYON BOOK

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ABSTRACT

This study aimed to verify the reliability and construct validity of the CRAYON BOOK, a comprehensive assessment tool designed for early childhood education settings. The CRAYON BOOK assesses five domains: environment and daily life, comprehension, concept formation, consent, and self-expression. Data was collected from 96 children attending four nursery schools in Japan, whose parents consented to their participation. The children's behaviors were observed and evaluated by nursery staff using the CRAYON BOOK. To assess reliability, Cronbach's α was used, confirming high internal consistency across all domains ($\alpha = .844$ to $.982$), with an overall scale reliability of $.989$. Construct validity was analyzed using structural equation modeling, and the results indicated a high goodness-of-fit across all indices. The findings suggest that the CRAYON BOOK is a reliable and valid tool for assessing children's development in early childhood education settings. It allows for the collection of quantitative data, which can help clarify the relationship between educational practices and children's growth. The CRAYON BOOK fills a significant gap in Japan's early childhood education by providing a standardized, practical tool for daily use by teachers, offering insight into both immediate developmental outcomes and potential long-term social and economic effects of early education. Future research should focus on expanding data collection to kindergartens and certified nursery schools to further validate its applicability across different educational settings.

Keywords: reliability, construct validity, structural equation modeling, early childhood education, CRAYON BOOK

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Received: 2024/08/31 ; *Revised:* 2024/10/18 ; *Accepted:* 2024/10/20 ; *Published:* 2024/10/30



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1. Introduction

In recent years, early childhood education has been regarded as important worldwide. A growing literature establishes that early childhood environments substantially impact later life outcomes¹⁻³⁾. Heckman et al. (2010)⁴⁾ show that the Perry program significantly enhanced adult outcomes including, education, employment, earnings, marriage, and participation in healthy behaviors, and reduced participation in crime. All treatment effects displayed there are statistically significant and survive adjustments for multiple hypothesis testing.

In Japan, there are three types of early childhood education: Yochien (kindergartens), Hoikusho/Hoikuen (nursing schools), and Nintei-Kodomoen (certified children centers). In 2017, the content of these three guidelines was consistent (Table 1).

Table 1. Facilities for Early Childhood Education in Japan

Yochien (kindergartens)
Yochien (kindergartens) falls under the umbrella of the Ministry of Education (MEXT) and its purpose is to prepare children for first grade and beyond. This is done through academics by MEXT. “Course of study for Kindergarten” is used.
Hoikusho/Hoikuen (nursing schools)
Hoikusho/hoikuen (nursing schools) are facilities that care for infants and young children in place of parents or guardians who are unable to look after their children due to work or other circumstances. The Hoikusho/hoikuen (nursing schools) is under the jurisdiction of the Ministry of Health, Labor and Welfare. “Hoikusho Hoiku Shishin (Guidelines for Nursery Care and Education at Day Nurseries)” is used.
Nintei-Kodomoen (certified children centers)
Nintei-kodomoen (certified children centers) are facilities that combine certain functions and characteristics of Yochien (kindergartens) and hoikusho/hoikuen, and provide childrearing assistance in the community. Nintei-Kodomoen (certified children centers) is under the jurisdiction of the Cabinet Office. “Nintei Kodomo-En Kyoiku Hoiku Yoryo (Guidelines for Education and Childcare Integrated ECEC Centers)” is used

It is not easy to ensure the quality of education by revising the three guidelines for early childhood education in Japan^{5,6)}. In addition, the quality of education must be guaranteed regardless of whether a child chooses to attend a kindergarten, nursing schools, or certified children centers. To achieve this, it is necessary to provide infant education according to the characteristics of each child. However, evaluation scales are needed to measure children's characteristics, but many Japanese infant education sites are measured by medical, psychological, and other specialists; for example, intelligence tests⁷⁾. In Japan, nursing school teachers and kindergarten teachers rarely use objective measures to assess children's actual conditions daily. The issue is that the understanding of the actual conditions of children relies solely on the experience of nursing school teachers and kindergarten teachers⁸⁾, and little early childhood education is based on objective data. Scales that can be easily used by childcare workers and kindergarten teachers are needed.

Okada, Kohara & Han (2017)⁹⁾ conducted basic research to develop a comprehensive tool for grasping the actual conditions of early childhood that can be used daily by nursing school teachers and kindergarten teachers. The results

showed the need to incorporate the perspectives of “concept formation,” “talent discovery,” and “parenting support” in understanding the actual conditions of infants and toddlers.

Based on those previous studies, Han (2019)⁵⁾ developed the CRAYON BOOK (Child Rearing Assist for Your Needs book), which is a tool that can be used in early childhood education settings and parenting situations. The CRAYON BOOK has been validated for its content validity¹⁰⁾. The CRAYON BOOK consists of five domains: “Environment and daily life”, “Comprehension”, “Concept formation”, “Consent (Nattoku)” and “Self-expression”. The scale also consists of a total of 206 items, and the total score in each domain allows the scale to measure the state of the educational field. Practical research has been conducted in early childhood education using the CRAYON BOOK; educational practices related to number concepts^{11,12)} and analysis of the developmental process of language concepts and linguistic expressions¹³⁾.

Although the CRAYON BOOK has been theoretically developed and validated for content validity, its reliability and construct validity have not been tested using data. The purpose of this study was to test the reliability and construct validity of the CRAYON BOOK using data accumulated to date.

2. Methods

2.1. Period

From March 2020 to June 2023

2.2. Subjects

Children attending four nurseries whose parents consented to their participation in the study.

2.3. Evaluation

The children's behavior was observed by daycare staff and assessed using the CRAYON BOOK.

2.4. Statistical Analysis

Cronbach's α was used to verify the reliability of the scale, and structural equation modeling was used to verify the construct validity of the scale. The SEM uses GFI (Goodness-of-fit index), CFI (Comparative Fit Index), and RMSEA (Root Mean Square Error of Approximation) as goodness-of-fit indices for validation. The conditions for goodness-of-fit indices are as follows: $GFI > 0.9$, $CFI > 0.9$, $RMSEA < 0.05$.¹⁴⁾ IBM SPSS ver.28 was used for the reliability analysis, and IBM Amos ver.28 was used for the validity analysis.

2.5. Ethical Considerations

At the nurseries where the study was conducted, the research content was explained in writing to all parents of the children. Additionally, nursery teachers provided direct explanations to parents through interviews and obtained their consent for the children's participation in the study. The author received the evaluation data anonymously, ensuring that individual children could not be identified.

3. Results

Evaluation data were obtained from 96 children at four nurseries, whose parents consented to their participation in the study. The characteristics of the children are shown in Table 2.

Table 2. Characteristic of children

		Mean (month)	SD (month)
Age		32.04	10.63
Sex	Male	58 (60.4%)	
	Female	38 (39.6%)	

The reliability analysis using Cronbach's α confirmed high reliability in all domains (.844-.982) (Table 3). Additionally, very high reliability was confirmed for the overall scale (.989).

Table 3. Results of Cronbach's α

Domain	Mean (Max)	SD	Cronbach's α
Overall scale	623.54 (1030)	130.53	.989
Environment and daily life	204.20 (235)	13.44	.844
Comprehension	50.02 (60)	9.09	.906
Concept formation	165.56 (330)	58.70	.982
Consent	46.98 (55)	6.51	.822
Self-expression	162.78 (350)	58.38	.981

The goodness-of-fit analysis using structural equation modeling to verify construct validity also confirmed high goodness-of-fit across all indices. The structural equation model used for the study is shown in Figure 1.

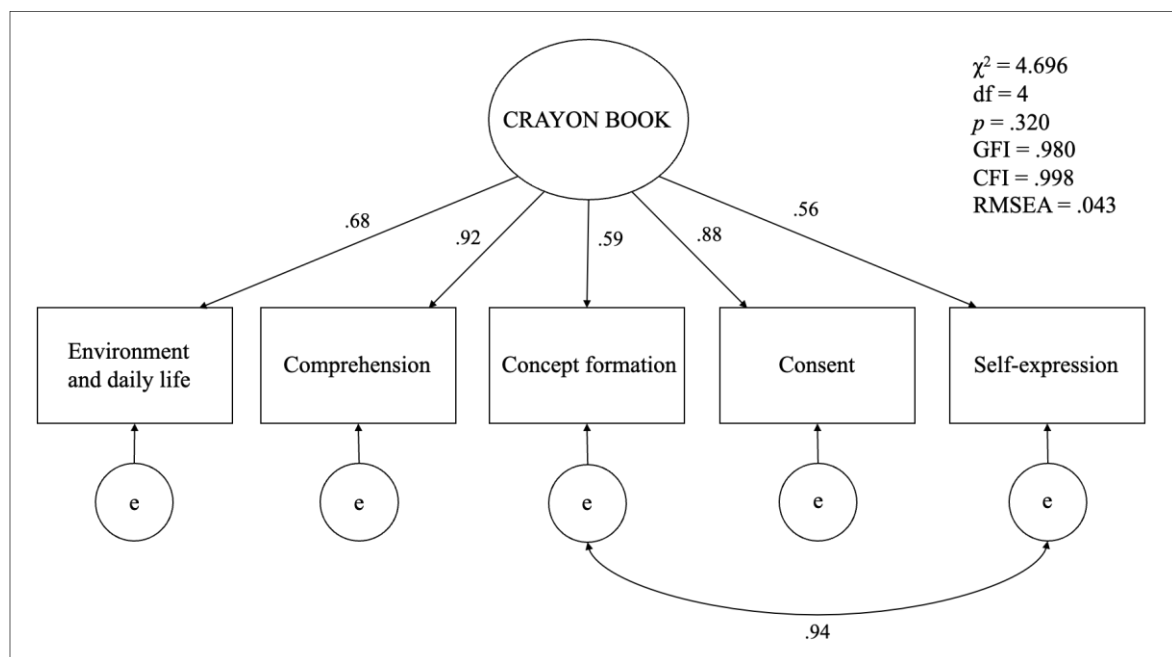


Figure 1. Structural Equation Modeling of CRAYON BOOK

4. Discussion

This study aimed to verify the reliability and validity of the CRAYON BOOK, a comprehensive scale designed to evaluate the early childhood education environment, caregivers' interactions with children, and the development of children's concept formation and self-expression. The results of statistical analyses of the data collected at daycare centers verified high reliability and construct validity.

In the structural equation model used to verify construct validity (Figure 1), covariance was observed between the domains of concept formation and self-expression, confirming a high correlation in the children's development. While the domains of “environment and daily life”, and “comprehension”/ “consent” reflect the evaluators' assessment of education, the domains of concept formation and self-expression represent an assessment of children's development. It is reasonable to consider that these domains, especially, showed high relevance as they reflect the children's growth as perceived by the evaluators.

In early childhood education in Japan, it has been pointed out that many scales are difficult for kindergarten and daycare teachers to evaluate on a daily basis ⁷⁾. Early childhood children grow every day, and there is a need for scales that allow teachers to incorporate professional elements and assess them regularly ⁷⁾. The CRAYON BOOK's reliability and validity were verified based on data evaluated by daycare staff, confirming its usefulness as a scale for assessing and recording children's growth. As a result of this study, the CRAYON BOOK became the first comprehensive assessment scale in Japan's early childhood education field, capable of assessing children's development on a daily basis, which had been a long-standing need⁹⁾.

The CRAYON BOOK is designed as a comprehensive assessment scale, capturing the multifaceted nature of early childhood education. By analyzing these aspects, it is expected to clarify how the quality of early childhood education influences children's cognitive development, such as language, mathematics, and artistic sense.

In Japan's early childhood education facilities, education is provided based on standardized guidelines, and the use of the CRAYON BOOK is expected to improve the quality of early childhood education across all facilities. As quantitative data accumulated using the CRAYON BOOK at each facility grows, it will help to clarify which early childhood education practices are linked to children's development. Globally, numerous studies, such as the Heckman Report, have measured the outcomes of early childhood education from social and economic perspectives, emphasizing its importance; For example, The Perry Pre-school Project⁴⁾, National Institute of Child Health and Human Development¹⁵⁾, The Effective Pre-school, Primary Education and Secondary Education¹⁶⁾. However, these studies have not evaluated the early childhood education practices themselves, leaving room for detailed analysis of what types of education lead to which social outcomes. By using the CRAYON BOOK to assess and record early childhood education and collecting longitudinal data over the long term, it is expected that the challenges of previous research can be addressed, enabling a more detailed analysis of the relationship between children's growth through early childhood education and their future social and economic outcomes.

5. Limitations and Future Research

The CRAYON BOOK was developed as a comprehensive assessment scale for early childhood education. By increasing the amount of data collected in the future, it will be possible to comprehensively understand how the content of early childhood education influences children's development. If the causal relationships between the individual items can be clarified in detail, it will also be possible to elucidate the relationship between the quality of early childhood education and children's growth.

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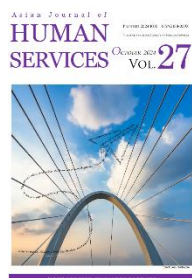
Acknowledgments

We would like to extend our sincere appreciation to the teachers of the daycare centers for their invaluable assistance in the data collection process for this study.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>
Online ISSN: 2188-059X / Print ISSN: 2186-3350
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REVIEW ARTICLE

Characteristics of Menstrual Health Issues of Working Women in Japan

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ABSTRACT

Purpose: This study aimed to review previous studies published in Japan on menstruation among working women and clarify the trends and characteristics of their health issues.

Method: A search for original articles published between 2012 and 2023 was conducted using ICHUSHI and CiNii, and 21 studies meeting our objectives were included in the analysis. The 21 articles were sorted by publication year, study design, subjects' characteristics, and subjects' age. Research trends and health issues related to menstruation among working women were then extracted and classified based on their similarities.

Results: Factors that triggered the onset of menstrual symptoms included age, night shift work, and stress. The negative effects of menstruation on employment involved inaccurate and inefficient work. Other issues found were the low utilization of social systems, such as menstrual leave, and lack of awareness among male managers. Relatively few women practiced self-care for their menstrual symptoms. Factors associated with lack of self-care included mild menstrual bleeding, menstrual symptoms, desire to avoid work interruption, and lack of awareness.

Conclusion: Education about menstruation should be provided regardless of gender, and support is needed to make self-care routine, even before menstruation begins.

Keywords: Working women, Menstruation, Health issues, Literature review

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Received: 2024/01/29 ; *Revised:* 2024/05/20 ; *Accepted:* 2024/06/26 ; *Published:* 2024/10/30



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1. Introduction

There are 27.18 million working women in Japan, accounting for approximately 50% of the total labor force, and this number is growing¹⁾. Japan's labor policy aims to promote women's employment, increase the proportion of women in management positions, and eliminate the gender gap; the number of working women is thus expected to continue increasing. Working women are also more likely to experience health problems associated with their menstrual cycles; a reported 70–80% of women in their 20s and 30s have menstrual problems, while 64.2% of women in their 20s and 51.8% of women in their 30s have menstrual pain²⁾. These health problems among working women are one of the causes of leave or retirement, evidenced by the fact that 15.8% of working women have taken time off work or quit their jobs due to “menstrual symptoms or disorders,” while 13.3% have done so due to “premenstrual syndrome (PMS)”³⁾. Health issues among working women also contribute to labor loss. The annual social burden of menstrual symptoms (abdominal pain, back pain, drowsiness, irritability, constipation, etc.) for working women is 682.8 billion yen, and the loss due to their absenteeism and decline in the quantity and quality of work is 491.1 billion yen⁴⁾.

Fluctuations in female hormones result in various health problems for women, such as menstrual abnormalities, reproductive organ disorders, and mental health issues, which are quite different from the experiences of men. In addition, Japanese women tend to experience an increase in the number of menstrual periods during their lifetime due to later marriages, older childbearing ages, and fewer childbirths, and it is essential for working women to deal with menstrual disorders. There are also reports that menstrual symptoms are decreasing the quality of life of working women⁵⁾. As a measure to reduce the impact of these health issues on working women, Japan's Ministry of Economy, Trade and Industry (METI) is promoting FemTech (a word derived from “female” and “technology”; products and services that use technology to solve health issues faced by women). Thus, supporting women's health issues caused by fluctuations in female hormones, such as during menstruation, is an urgent need in order for women to play an active role in society.

“Health care and welfare” is currently Japan's largest and fastest growing occupation, compared to other industries, employing 6.4 million women⁶⁾. Considering the health of working women in Japan, we plan to create a health support program for working women involved in this industry. This study aims to review research articles published in Japan related to menstruation among working women to identify trends and characteristics of the related health issues. This can then be used as basic data in planning the content of a health support program.

2. Methods

2.1. Literature retrieval

Bibliographic databases used for the literature survey were the Central Journal of Medical Science Web Edition Ver. 5 (ICHUSHI) and CiNii. These two databases were used to ensure good coverage of Japanese medical and nursing papers. The selection criterion was “health issues related to menstruation among working women in Japan” are described. The search conditions were original articles published between January 2012 and April 2023, the search was limited to titles and abstracts, and the keywords were “working women” AND “health,” AND “menstruation,” OR “menopause.” The search results were verified by three independent researchers. The exclusion criteria were “not for women in Japan,” “for occupations that involve working outside the workplace,” and “without new knowledge about the actual situation of working women,” such as literature reviews and scale development articles.

2.2. Analysis Method

The selected articles were classified by year of publication, study design, and study subjects and their age group. From these, we identified research trends related to menstruating working women, as well as the health issues they faced. The extracted health issues were inductively classified in terms of their similarities and differences.

In all analyses, the use of the literature was limited to the scope of this study, and copyright was respected.

3. Results

A total of 26 original articles were selected, including one article found manually. Of these, two reports of “studies that did not focus on Japanese women,” one report of “studies on forms of work outside the workplace such as telework,” which is rare in medical employment, one report of “studies on scale creation,” and one literature study were excluded, leaving 21 articles for analysis.

The numbers in parentheses in the following text correspond to the article numbers listed in Table 1.

Table 1: List of References

No	Author Name	Publish year	Research Design	Analysis Method	Main Results	Subject (of taxation, etc.)
1	Michiko Kimura	2022	Cross-sectional observational study	Basic Statistics χ^2 Test Mann-Whitney Test Kruskal-Wallis Test Multiple Regression Analysis	It was suggested that nurses in the AYA generation are more likely to have irregular menstrual cycles and more menstrual cramps. In addition, 90% of them had decreased work performance during the perimenstrual period. Health problems associated with the menstrual cycle that affected work performance during the perimenstrual period were "behavioral changes" and "pain" in the menstrual-associated symptoms and heavy menstrual bleeding, which decreased the nurses' work performance.	420 female nurses aged 20-40
2	Natsuo Sasaki, Kanami Tsuno, Yui Hidaka, et al.	2021	Cross-sectional observational study	Basic Statistics χ^2 Test	The percentages of those with symptoms that interfered with their ability to work were: physical symptoms (89%), menstrual problems (65%), and psychological symptoms (49%). Support utilization rates were: flextime and telework (1.3%), menstrual leave (4%), and shorter work-hour programs (8%). There was a significant association between having menstrual problems and work-life balance issues and expecting them to be studied, but the percentage of symptomatic respondents who expected an intervention was 48% in all cases.	416 female workers
3	Naoe Ubukata, Tomoko Yukita, Yukiko Miyazaki	2021	Cross-sectional observational study	Basic statistics t-test	The mean of the total MDQ score was almost the same before and during menstruation and was lowest after menstruation. In terms of the relationship between self-care and MDQ, significant differences were found in items such as "consideration for cold" and "keeping the body warm" in all menstrual cycles. The number of respondents who felt the effects of these self-care practices ranged from 60 to 90%.	1,092 working women aged 20-45
4	Kiyomi Konishi, Kazuo Meijo, Eriko Nagamine, et al.	2021	Cross-sectional observational study	Simple aggregation Content analysis	Regarding the inclusion of menstrual status in the incident report, 176 (32.6%) of the respondents answered "good," and 61 (11.3%) answered "not good." The reasons were: want to know the relationship between menstruation and incidents, influence on work if menstrual symptoms are intense, improve the work environment, privacy concerns, do not want to use menstruation as a reason, and no measures. The percentage of nurses who took menstrual leave was 19 (3.5%).	548 female nurses aged 20-39
5	Hideo Kimura, Seichi Azuma	2021	Cross-sectional observational study	Simple aggregate	The most common complaint was cold (31 cases), followed by constipation (16 cases), edema (15 cases), anxiety/irritability (12 cases), and irregular menstruation (11 cases).	53 working women aged 20-39 years who visited a Chinese medicine clinic
6	Chihito Yamaki, Yoko Tokiwa, Miyoshi Yoshizawa, et al.	2020	Cross-sectional observational study	χ^2 test t-test	Several factors were associated with self-care: the amount of menstrual blood loss, the degree of menstrual complications, whether or not self-care interfered with work, awareness of self-care, and knowledge of menstrual complications and self-care. More than 30% of the respondents reported that their menstrual symptoms interfered with their ability to work. Even among nurses, knowledge was related to whether or not self-care was practiced.	456 female nurses under 50 years old
7	Miyuki Kanemune, Mari Takahashi	2019	Cross-sectional observational study	Basic Statistics Correlation of all variables Multiple Regression Analysis Covariance Structure Analysis	Menopausal symptoms had a significant negative correlation ($r=-.471$, $p<.01$) with "overall sense of health." Among menopausal symptoms, psychological symptoms were significantly negatively correlated with HP behavior ($r=-.306$, $p<.01$) and self-efficacy ($r=-.413$, $p<.01$). Direct influences on menopausal symptoms were self-efficacy and SF-8 Mental Summary Score. The most significant direct influence reinforcing menopausal symptoms was "health status," while "self-efficacy" suppressed menopausal symptoms.	1,201 female nursing workers aged 40-59
8	Junko Mogi, Takahiko Kawamura, Takuya Nakayama, et al.	2019	Cross-sectional observational study	X2 test t-test Mann-Whitney U test Pearson's rank correlation multiple regression analysis	Compared to premenopausal women, post-menopausal women had significantly higher age, LDL-C, HDL-C, adiponectin, HbA1c, 8OHdG, vitamin D3, and lower IGF-1, lean body mass, and leg muscle mass. In terms of lifestyle, post-menopausal women were more likely to report that they "have an exercise habit" and "walk faster than others of the same age." Post-menopausal women who answered that they walked faster were more physically active and had greater muscle strength. The results suggest that even if muscle mass decreases after menopause, muscle mass may be maintained through lifestyle habits that increase physical activity.	83 hospital-employed women aged 41-64

No	Author Name	Publish year	Research Design	Analysis Method	Main Results	Subject (of taxation, etc.)
9	Fumihisa Myauchi, Naoko Ohzumi, Hideyuki Kagawa, et al.	2018	Longitudinal study	Basic statistics t-test χ^2 test	Two years later, complaints about menopause and infertility increased significantly. Two years later, significantly more women visited a medical institution complaining of "menstrual cramps and excessive menstruation." Two years later, there was a significant increase in "slight disruption of usual work due to physical reasons." These findings may result from the stressful working environment in the medical field and age-related changes.	4,748 women working in hospitals
10	Eriko Sunaga	2018	Cross-sectional observational study	Descriptive Statistics χ^2 test Kruskal Wallis test Steel-dwass test	In relation to symptoms, age, coping behaviors, and occupational stress, "depressed/ hopeless mood," "anxious/ nervous," "fearful/sad," and "easily tired/ low energy" were high among mental symptoms among those aged 25-34. Regarding self-care learning needs, those who did not want to learn coping skills also accounted for more than 69%. In the relationship between coping behavior and symptoms, those who "do" cope had significantly higher scores for all mental, physical, and social dysfunctional symptoms than those who "do not" cope. Women with coping behavior and the high occupational stress group had significantly higher scores for mental symptoms, physical symptoms, and social impairment.	362 working women aged 20-40
11	Mami Hagiwara, Akiko Mori	2018	Cross-sectional observational study	Basic Statistics Factor Analysis One-Way ANOVA	Fluid retention pain was the highest in the premenstrual, middle, and late stages, followed by instability of emotions, behavior, thoughts, autonomic nervous system disturbances, and positive emotions. Three factors were extracted for impediments to nursing work: restlessness and inaccuracy, decreased ability to control emotions and decreased work efficiency due to physical symptoms. About 40% of the respondents did not actually do their work even though they wanted to change their work or adjust their workload due to painful menstrual symptoms. Many of them pushed through their symptoms and continued to work. The reasons for this were "difficulty in taking time off work," "difficulty in going to the restroom," "difficulty in expressing their pain to others," and "lack of understanding by others."	646 female nurses
12	Fumihisa Myauchi, Naoko Ohzumi, Hideyuki Kagawa, et al.	2018	Cross-sectional observational study	Basic Statistics χ^2 Test	Menstrual-related symptoms were the most common reason for consultation, and there was no difference between the working and housewife groups. Working women had more menstrual-related symptoms than homemakers and had various subjective symptoms. Working women were more likely to visit the outpatient clinic with more severe symptoms.	232 women diagnosed with uterine fibroids (184 employed, 48 unemployed)
13	Fumihisa Myauchi, Naoko Ohzumi, Hideyuki Kagawa, et al.	2018	Cross-sectional observational study	Basic Statistics t-test χ^2 Test	Menstruation-related symptoms were significantly higher in the group with night work than in the group without night work. The proportion of respondents with no night work was 19.9%, which was significantly lower than that of the group without night work (27.1%). Significantly more respondents with night work reported that "pain sometimes interferes with daily life" than those without night work, while significantly fewer respondents reported that "I have pain, but can perform daily life normally." The proportion of nurses who used analgesics for menstruation was 64.6% in the group with night shifts, which was significantly higher than that of the group without night shifts (54.5%).	3573 nurses (2500 with night shift, 1073 with day shift only)
14	Shion Higuchi	2018	Cross-sectional observational study	Grounded theory approach	Five categories were generated: Distress due to menstruation, Distress intensified by work, Normative consciousness as a member of society, Conflicts in control, and Postmenstrual emotions.	13 working women (23-25 years old) in their first to third year of employment
15	Shinichi Igarashi	2018	Cross-sectional observational study	Basic statistics t-test χ^2 test	Irregular menstruation was significantly more common in the education and medical groups in their 30s, and menstrual cramps were significantly more common in the medical group in their 40s. Menopausal symptoms were significantly more frequent among manufacturing and office workers. Endometrial thickness was significantly higher in the medical group. Abnormality was significantly higher in manufacturing and office workers.	Gynecological checkups under 49 years of age 518 (84 medical, 119 clerical, 126 manufacturing, 73 education, 116 non-working)

No	Author Name	Publish year	Research Design	Analysis Method	Main Results	Subject (of taxation, etc.)
16	Fumihisa Miyauchi, Naoko Ohzumi, Hideoyuki Kagawa, et al.	2017	Cross-sectional observational study	Basic Statistics: χ^2 Test	Female managers were more knowledgeable about women-specific diseases than male managers. Male managers were significantly less knowledgeable than female managers regarding the question, "Are there people in your workplace who are being treated for women's diseases or menopausal disorders?" Male managers were significantly less knowledgeable than female managers regarding the question, "Do you give consideration to subordinates with female-specific illnesses?" Male managers selected "Yes" at one-fifth the rate of female managers.	1028 middle managers (796 men, 232 women)
17	Nishikitani Mariko, Nakao Mutsuhiro, Tsuringano Shinobu, et al.	2017	Cross-sectional observational study	Basic Statistics: χ^2 Test Wilcoxon Rank Sum Test Multiple Logistic Regression Analysis	There was no significant relationship between symptoms of dysmenorrhea and decreased work efficiency. An association was found between shorter time between the end of work and resumption of work the next day, health concerns and health complaints, and abnormal menstrual cycles.	505 working women aged 23-43
18	Fumika Kimura, Ayumi Echigo, Hiroyasu Iwatsuki	2017	Cross-sectional observational study	Basic Statistics: χ^2 Test	There was a significant difference in the presence or absence of back pain between the normal and irregular menstrual groups, with the irregular menstrual group having more back pain.	139 women working in nursing homes
19	Fumihisa Miyauchi, Naoko Ohzumi, Hideoyuki Kagawa, et al.	2016	Cross-sectional observational study	Basic statistics t-test χ^2 test	Compared to homemakers, working women tend to undergo surgery earlier for ovarian endometriosis but later for cervical cancer. Compared to homemakers, working women had significantly more post-discharge anxiety.	27,535 women who underwent surgery for gynecological diseases in the past 20 years
20	Eriko Suringa	2016	Quantitative descriptive study	Basic Statistics χ^2 test Wilcoxon's rank sum test Spearman's correlation coefficient	In total, 31.9% of the respondents were taking some measures to alleviate menstrual symptoms. 45.1% of the group with moderate to severe menstrual symptoms did not engage in self-care despite the severity of their symptoms. The top coping methods were "sleep," "lying down," and "warm compress." The most common reason for not coping in both groups was "not being able to take leave from work," followed by "it is a hassle to do something." The occupational stressors "work quantity burden," "work quality burden," and "interpersonal relationships at work"; the modifiers "support from coworkers" and the stress reactions "irritability," "fatigue," "anxiety," "depression," and "physical complaints" were significantly more stressful in the medium and severe groups.	345 working women in regular employment aged 20-40
21	Yuniko Sakuma, Seiko Miyauchi, Akiyo Sasaki, et al.	2014	Cross-sectional observational study	Basic Statistics t-test Mann-Whitney-U test Analysis of variance Friedman test	In terms of menstrual symptoms, "constipation" was significantly decreased in the yoga group after eight weeks. Psychological indicators showed that after eight weeks, the yoga group significantly increased "Mood Decline" and "Physical Disease." The results of the survey were significantly improved.	19 working women with menstruation

3.1. Research trend (year of publication, study design, and study subjects and their age groups)

The most common reporting year was 2018, with seven articles; followed by 2021, with four; 2017 with three; 2019 and 2016 with two each; and finally, 2022, 2020, and 2014, with one each. With regard to the study design, there were 20 cross-sectional observational studies and one longitudinal study. The composition of study subjects' occupations included six nursing, three hospital/nursing home staff, and 12 unspecified. Their age was unspecified in nine cases, 23–25 years in one case, 20–39 years in three cases, 20–40 years in two cases, 23–43 years in one case, 20–45 years in two cases, 40–59 years in one case, 49 years or younger in one case, and 50 years or younger in one case.

3.2. Health issues related to menstruation among working women

The extracted health issues were classified into “impact on physical, psychological, or employment conditions” and “health behaviors related to menstruation.”

3.2.1. Impact on physical, psychological, or employment conditions

The impact of health issues on women's physical, psychological, or employment conditions was broadly divided into “Factors related to the onset of menstrual symptoms” and “Effects of menstruation on employment.”

3.2.1.1. Factors associated with the onset of menstrual symptoms

Factors influencing the onset of menstrual symptoms were mainly menstrual cycle (3, 11), age (1, 9, 15), occupation (15, 18), work pattern (day/night shift), and working hours (13, 17). Meanwhile, the degree of stress (20) was found to be a factor affecting the development of premenstrual syndrome, while menopausal symptoms were reported in two articles (7, 8).

Menstrual status included reports of concomitant symptoms and menstrual cycle irregularities. Across all menstrual periods, physical discomfort due to fluid retention/pain was the most common, followed by emotional, behavioral, and/or thought instability and autonomic nervous system dysfunction (11). The severity of menstrual symptoms was the same before and during menstruation and was mildest after menstruation. Working women who were stressed at work had more severe menstrual symptoms in all menstrual periods compared to those who were not stressed (3).

In terms of age, 29.5% of nurses younger than 40 years reported irregular menstrual cycles, and 20.1% reported heavy menstrual bleeding (1). Ninety percent of nurses reported that their performance was impaired by pain, other menstrual complications, and heavy bleeding. Among them, nurses in their 20s had more menstrual complications and irregular menstrual cycles (1).

Over a two-year study on the health status of women working in hospitals, the number of women visiting medical facilities due to “menstrual cramps and excessive menstruation” saw a significant increase at the end of the two years (9). Similarly, complaints about menopause and infertility also increased significantly, which was thought to be due to stress in addition to older age (9).

In terms of occupation, irregular menstruation was significantly more common among those in their 30s in the educational and medical professions, and menstrual cramps were significantly more common among those in their 40s in the medical profession (15). Abnormal endometrial thickness was significantly higher among medical, manufacturing, and office workers (15), while menopause was significantly more common among manufacturing and office workers (15).

Irregular menstruation was associated with lower back pain, which was significantly more common in the irregular menstruation group among women in medical care occupations (18).

In terms of work type and working hours, nurses who worked night shifts had significantly higher levels of menstrual pain and irregular menstrual cycles as well as menstrual-related symptoms, including pain, excessive menstruation, irregular menstruation, midterm pain, premenstrual dysphoric disorder, and irregular bleeding, compared to nurses who only worked day shifts (13). In terms of analgesic use, nurses who worked night shifts used analgesics more frequently than those who worked only day shifts (13). In terms of working hours, there were no significant differences between shorter working intervals and their effects on menstrual cycle abnormalities, dysmenorrhea, or work efficiency due to various menstrual symptoms (17). However, women with shorter work intervals had higher levels of health concerns and dissatisfaction and were more concerned about the impact on their future menstruation (17).

For premenstrual syndrome, stressors and reactions are more common in the moderate and severe groups than in the mild group (20).

Nurses in the late stages of their careers, aged 40–59 years, had a significant negative correlation between “overall sense of health” and menopausal symptoms. Among menopausal symptoms, psychological symptoms had a significant negative correlation with health promotion behaviors and self-efficacy (7). Working women in the transition to menopause tended to have unhealthier lifestyle habits and a higher menopausal index (8).

3.2.1.2. Effect of Menstruation on Employment

The effects of menstruation on employment include interference with work (6, 9,14), such as stress and reduced efficiency (4, 9, 11, 20), as well as the use of social systems (2, 4, 11), supervisor perceptions of menstruation and female genital disorders (16), and expectations of the workplace (2).

Many working women experience menstrual symptoms that interfere with their ability to work (6). Another factor affecting presentism among working women is premenstrual syndrome (6). Women with premenstrual symptoms feel flawed and inefficient at work during the period around menstruation (6, 11). Simultaneously, many women are unable to control their emotions or ignore their symptoms and go to work (6, 11). Women working in the medical field were found to have a slightly impaired health status due to their work. (9). This may result from stressful working environments in the medical field and age-related changes (9). Moreover, “distress caused by menstruation itself” evolved into “distress intensified by work” as a process of the obstacles to work caused by menstruation, while working women’s “sense of norms as a member of society” caused “conflicts in control” leading to “postmenstrual feelings (calmness of mind, anxiety about the next menstrual period)” (14). Their “normative consciousness as a member of society” included “I should behave in the same way,” “I should have a sense of responsibility at work,” and “I should not bring menstruation into my work” (14).

In the relationship between stress and the degree of premenstrual syndrome in working women, “work quantity burden,” “work quality burden,” and “interpersonal relationships at work” were stressors for women with moderate or severe premenstrual syndrome (20), while stress responses included “irritability,” “fatigue,” “anxiety,” “depression,” and “physical complaints” (20). Additionally, obstacles to nursing work due to menstruation included restlessness and inaccuracy, decreased ability to control emotions, and decreased work efficiency due to physical symptoms (11).

On the other hand, when working women were asked whether or not menstrual status should be included in the incident

report, the most common response was “don’t know” (4), with the reasons being “privacy cannot be protected,” and “menstruation should not be a reason for error” (4).

Regarding the use of social systems by working women, approximately 40% did not actually use them, even if they wanted to change their work or adjust their workload because of painful menstrual symptoms (11). The rate of menstrual leave use was also low (2, 4), stemming from “not knowing about the system itself,” “not knowing if it exists in the workplace,” and “it does not exist in the workplace” (4). However, more than half of the respondents wanted to take menstrual leave (4).

According to the data, menstrual pain (54.8%) was relatively well-known to male managers among menstruation-related symptoms (excessive menstruation, frequent menstruation, menstrual cramps, dysmenorrhea, and premenstrual syndrome), but only some 10% were aware of other symptoms (16).

Working women, however, wanted workplaces to conduct research “to alleviate shoulder and back pain” (45%), “to improve women’s mental health” (41%), and “research on menstruation and job performance” (35%) (2). While there was a significant association between experiencing such menstrual problems and expectations for relevant research, less than half of the women suffering from menstrual symptoms expected an intervention from their workplace (2).

3.2.2. Health behaviors related to menstruation

Health behaviors related to menstruation among working women were divided into two main categories: menstruation-related self-care and learning needs related to female hormones.

3.2.2.1. Self-care regarding menstruation

Self-care related to menstruation among working women included self-care frequency (19, 21), factors related to self-care practices (3, 6, 10), content of self-care (3, 4, 6, 19, 21), activities of daily living and their impact on health (8), and health-seeking behaviors (5, 12, 19).

Few working women practiced self-care for their menstrual symptoms (6, 21), with the reasons being “I can’t take leave from work” and “It’s a hassle to do something” (21). Additionally, multiple factors were related to the implementation of self-care, including the amount of menstrual blood loss, the degree of menstrual complications, whether or not self-care interfered with work, awareness of self-care, and knowledge of menstrual complications (6). The degree of symptom awareness also influenced self-care implementation (3, 10). However, nearly half the respondents did not practice self-care even when their premenstrual syndrome symptoms were moderate to severe (20).

The self-care activities included “taking care of myself when it is cold,” “keeping the body warm,” “sleeping more hours, taking naps,” “lying down,” and “using painkillers” (3, 19), which was the most effective self-care activity (3, 6). Another self-care behavior was visiting a Chinese medicine doctor for irregular menstruation (4). Simple yoga was found effective in improving flexibility, physical and mental discomfort, and menstrual symptoms and fatigue among working women, with a significant decrease in “constipation” among the yoga group after eight weeks, together with a decrease in “mood swings” and “physical discomfort” (21).

Regarding the influence of daily lifestyle and health among working women, post-menopausal women tended to be more physically active and have higher muscle strength than those who perceived their own walking speed to be fast (8), suggesting that muscle strength may be maintained even after menopause through a lifestyle that increases physically. It

means measures against activities in cold weather (8).

Working women had various subjective symptoms, including menstruation-related symptoms, at the time of their first clinic visit (12). While working women refrained from seeing a doctor until the last minute, homemakers tended to see a doctor earlier (12). However, as noted above, some working women visited Chinese medicine clinics for irregular menstruation (5).

3.2.2.2. Learning needs related to menstruation

Learning needs regarding menstruation among working women were reported as those related to self-care (4, 10, 20). Although nearly 70% of working women did not perceive the need to learn to cope with menstruation (4, 10), women who were not coping had significantly higher learning needs related to self-care than those who were (10). “Aromatherapy,” “autonomous training methods,” and “imagery methods” were the top desired learning content, and “Internet” was the preferred learning method, indicating a need for web-based learning content and programs (20). Meanwhile, a survey of nurses found learning “about the relationship between menstrual periods and human error” and “self-care for menstrual symptoms” to be their desired healthcare measures related to menstrual complications (4).

4. Discussion

This study aimed to analyze the domestic literature on menstruation among working women and identify research trends and health issues to produce relevant content and methods of health support for these women.

4.1. Characteristics of menstruation-related health status of working women

Factors associated with the occurrence of menstrual complications among working women were menstrual period, age, occupation, and type of work. All the time periods of premenstrual, menstrual, and postmenstrual periods presented with menstrual-related symptoms such as instability in emotional behavior and thinking, in addition to physical distress such as back pain and fluid retention^{7,8)}. Some working women worked irregular shifts, including night shifts, and their menstrual-associated symptoms were significantly higher⁹⁾, indicating that irregular work patterns affect their menstrual health. In a previous study, shift work also affected menstrual symptoms^{10,11)}, similar to the present results. There were also reports that job stress affects the menstrual cycle¹²⁾ and that irregular menstruation is significantly more common¹³⁾ in women working in pink-collar occupations, but none of these were found in Japan with reference to job type. It was also reported that women younger than 21 have more absenteeism due to menstruation¹⁴⁾, but no study was found in Japan that referred to age-related coping behavior. It can be inferred that the women felt menstruation should not be brought into their work even when menstrual symptoms appear¹⁵⁾, and they hence continued to work.

At the same time, working women experience a decline in their work performance associated with menstrual symptoms^{8,16,17)}, and are unable to control their emotions^{16,17)}; there are concerns that continuing to work in such instances could lead to serious work-related errors and damage women’s health. In total, 80% of women are reported to have presenteeism during menstruation¹⁴⁾, and it was suggested that there is concern that the women’s health may be compromised. In addition, the annual social burden caused by menstrual symptoms (abdominal pain, back pain, sleepiness, irritability, constipation, etc.) among working women exceeds 600 billion yen, and the loss of work due to decreased work quantity and quality, as well as absenteeism, is nearly 500 billion yen⁴⁾. It is, therefore, clear that unless the health issues

of working women are urgently addressed, Japan's socioeconomic loss will be immeasurable.

One of the measures to address these issues is self-care. Self-care is the first step in dealing with menstrual-related symptoms¹⁸⁾. However, the most utilized method to alleviate menstrual cramps and menstrual complications was found to be the "use of painkillers"^{7,17)}, whereas self-care behaviors such as "keeping warm," "stretching," and "getting enough sleep" were not frequent^{17,19)}. Self-care behaviors were more prevalent among those with more pronounced menstrual symptoms¹¹⁾. According to our analysis, factors preventing working women from practicing self-care included perceptions that "there is nothing to do," "we just have to get along," "we just have to give up," or "we just have to put up with it"²⁰⁾. It was also observed that factors preventing the implementation of self-care are influenced by the working environment and women's own perceptions, such as "I can't take leave from work," and "It's a hassle to do something"¹²⁾. Supporting women to adopt self-care as part of their daily routine during the premenstrual period, before the onset of distress associated with menstrual symptoms, such as warming and stretching, and creating a working environment that allows them to accept the discomfort associated with menstrual symptoms and adjust their work schedules, including taking leave, will therefore positively impact women's well-being. In addition, a previous study that verified the effectiveness of an application that can predict menstrual cycles and has various information provision functions reported significantly less deterioration in the mental state and menstrual difficulties of working women²¹⁾. We believe that self-care using such a tool could be considered.

This analysis revealed that working women do not encourage their workplaces to include various support systems, such as menstrual leave, and do not actively seek learning opportunities. This may be due in part to the low percentage of Japanese women requesting menstrual leave (0.9%)⁵⁾, the influence of women's perception of menstruation, and the fact that the percentage of establishments offering "paid" wages during menstrual leave is not high (29.0%)⁵⁾, and the fact that women are not willing to use social systems, feel a decrease in work efficiency, and work while absent from their jobs. This may also be²²⁾ a factor. Although menstruation is no longer viewed as impure, opinions are still split between "hiding" and "not hiding"²³⁾. The perception of women's menstruation is not a problem only in Japan. For example, Schoep et al.¹⁴⁾ reported that 20% of workers in the Netherlands who were absent from work because of menstruation were honest about the reason for their absence.

Since menstruation itself is a natural and healthy activity, there is resistance to medical treatment for its symptoms, and since it is a problem unique to and varying amongst women, there are difficulties in gaining adequate understanding²⁴⁾. Additionally, approximately 40% of women are unable to tell others about their menstruation²⁵⁾, and women experience more occupational stress than men²⁶⁾, which is a factor in the appearance of menstrual symptoms. Therefore, education on menstruation is necessary to change workplace culture, including understanding menstrual symptoms. It is particularly important to underline that menstruation is a natural and healthy activity and should not be regarded as a private issue for women. In a survey of caregivers, Chou et al.²⁷⁾ found that the way caregivers perceive menstruation is different from that of their patients and that the way they perceive menstruation is different from that of their patients. Chou et al. pointed out in their survey of caregivers that how caregivers perceive menstruation affects how they deal with menstruation, and how they perceive menstruation has an impact not only on women but also on the subjects they encounter at their workplaces. It has also been reported that how women perceive menstruation also affects their well-being²⁸⁾, and thus has an impact on women's lives prior to employment. It is important to work on changing women's awareness of menstruation as soon as possible. Therefore, education on menstruation is necessary for changing the workplace culture, including understanding menstrual symptoms, the fact that menstruation is a natural and healthy activity, and that menstruation should not be

regarded as a private issue for women, regardless of gender.

Gynecological consultation behavior among Japanese women is 55% lower than in Western countries²⁹⁾. Working women improving their health at sexual maturity will determine their well-being for 30-40 years after menopause. However, women's reluctance to publicly disclose their menstruation also leads to delays in hospital visits³⁾, which can lead to further health problems. Despite efforts to improve women's health, such as the establishment of the Office of Women's Health Promotion Health Care Lab³⁰⁾, preconception care, and other programs³¹⁾, specific health support initiatives have not yet been implemented, and health support has not been evaluated. One key aspect to be investigated is encouraging women to recognize their own health and educating men and women about issues specific to women to improve the health of working women from the stage of sexual maturity.

4.2. Research Issues Related to Menstruation in Working Women

Four research issues related to menstruation among working women were identified.

First, there was only one intervention program for self-care, and the factors preventing its implementation have not yet been thoroughly examined. Menstruation education for middle and high school students requires interventions aimed at behavior change³²⁾, and there is a perception among working women in their first to third year of work that they should behave in the same way, be responsible for their work, and should not bring menstruation into their work³³⁾. Thus, this study suggests the importance of support for self-care that can be implemented by youths themselves prior to employment, while the perception of menstruation and menopause among women needs to be examined. Specifically, support focusing on health literacy is needed, as it has been reported that working women with higher health literacy experience significantly less presenteeism during premenstrual syndrome³⁴⁾. Formulating and implementing education aimed at behavioral change is necessary so that working women are aware and can implement self-care to improve their hormonal health.

The second point concerns two studies on the health status of working women in the post-menopausal period after sexual maturity. Japan's number of working women is increasing annually, which aligns with its aim of creating a society where women are active. Health support for working women during menopause is indispensable for them to be active in the long term. In the future, there is an urgent need to conduct research on the health of women after sexual maturity and consider support for them.

Third, there is a paucity of research on working men. In our country, a high percentage of male managers⁵⁾ and working women are supervised by men. However, male managers' knowledge of menstruation, its related symptoms, and women-specific diseases are all lower than that of female managers³⁵⁾. On the other hand, 60% of men in their 20s perceive that they would like to understand more about menstruation.²⁵⁾ In considering the menstrual health of working women, it is necessary to improve not only the health literacy of women but also the health literacy of their surroundings and managers³⁶⁾, and understanding the work environment and the men they work with is essential. As this analysis included only one study conducted on men, it is necessary to further investigate their awareness and knowledge of hormone-related health among working women and the need to promote a healthy workplace culture.

Fourth, the health of working women should be considered from the perspective of each phase of the menstrual cycle (follicular, luteal, and menstrual), which was done by only one study in this analysis. Female hormones fluctuate over a short period of time, and subjective symptoms change during the different cycle phases. In a report examining the relationship between the menstrual cycle and nurses' late-night work, night shift work during the luteal phase was found

to be significantly more burdensome for nurses³⁷⁾. Therefore, a detailed study on the effects of female hormonal cycles on working women is required.

4.3. Study Limitations

To examine the menstrual health of working women in Japan, the keywords for this study were “working women” AND “health” AND “menstruation” AND “menopause. As such, it is undeniable that literature on specific occupations, such as nursing or architecture, may not have been included in the study. In addition, the number of references was small, and it is difficult to say whether the study revealed the entire picture of menstrual health among working women, who are diverse in nature. Further studies are needed to confirm this hypothesis.

5. Conclusion

This study aimed to clarify the status of studies on menstruation among working women in Japan over the past ten years and examine research issues for the future. A review of 21 studies showed that factors associated with the appearance of menstrual symptoms included age, night-shift work, and stress. The effects of menstruation on work include inaccuracy at work, feelings of inefficiency, enduring symptoms, low use of social systems such as menstrual leave, and a lack of awareness among male managers. In addition, few women practiced self-care for their menstrual symptoms. Factors such as the amount of menstrual blood loss, the degree of menstrual symptoms, the presence or absence of obstacles to work, and awareness of self-care were found to be related to self-care implementation. It was suggested that working women need to be supported to adopt self-care as a routine before menstruation begins and that education related to menstruation is needed for both men and women. This study also suggests the need to accumulate more research regarding female hormones throughout the lives of working women.

Conflicts of interest

This research was presented at the 22nd Annual Conference of the Japanese Society for Women’s Health. It was also part of the “Basic Research for the Development of Health Support Programs for the Well-Being of Working Women,” a research theme of the Dokkyo International Medical Education and Research Foundation Award for Research Encouragement, and was subsidized by the Dokkyo International Medical Education and Research Foundation.

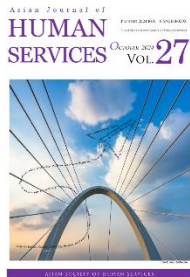
There are no conflicts of interest related to this study.

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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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SHORT PAPER

Self-Determination in Children with Intellectual Disabilities or Autism Spectrum Disorder; Perspectives of Parents from Fujian Province and Taiwan

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ABSTRACT

The promotion of self-determination is crucial in the field of special education, particularly for children with intellectual disabilities or autism spectrum disorder. However, little is known about the role parents play in fostering self-determination for their children with developmental disabilities outside of school. This study aims to assess the perspectives of parents in Fujian and Taiwan regarding the importance, opportunities, and capacity of self-determination. Additionally, we explore how factors such as geographic regions, children's disability categories, and grade levels influence parents' perspectives. We surveyed 404 parents of children with intellectual disabilities or autism spectrum disorder in Fujian Province and Taiwan. The results revealed that parents' perception of the importance of self-determination affected how they provided opportunities for self-determination at home. Furthermore, parents who were more inclined to provide their children with opportunities for self-determination generally perceived their children's ability to exercise self-determination as higher. However, this correlation is influenced by the specific type of disability that the child has. The study also discovered that parental perspectives on the capacity of self-determination skills varied depending on the child's disability category and grade level. These findings suggest the need for further research on implementing self-determination at home, which should focus on: 1) Providing parents with accurate information about their children's self-determination abilities; 2) Developing effective strategies for promoting self-determination in students with disabilities, especially those with intellectual disabilities and autism spectrum disorder; and 3) Emphasizing the importance of teaching self-determination skills to children with disabilities at a young age through specially designed instructional programs.

Keywords: Self-determination, parents' perspectives, autism spectrum disorder, intellectual disabilities

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Received: 2024/02/07 ; *Revised:* 2024/05/05 ; *Accepted:* 2024/06/26 ; *Published:* 2024/10/30



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1. Introduction

Self-determination stands out as a pivotal predictor of achievement, encompassing both in-school and post-school phases¹⁾. When children, regardless of their disability status, receive explicit instruction and opportunities to develop and practice skills associated with self-determination, they are expected to achieve academic objectives of their choosing in school²⁾, leading to favorable outcomes after leaving school³⁾. However, due to the unique characteristics of children with intellectual disabilities (ID) or Autism Spectrum Disorder (ASD) compared to their non-disabled peers or individuals with other disabilities, children with ID or ASD often demonstrate poorer academic and post-school outcomes, as well as lower levels of self-determination^{4,5)}.

Parents plays a pivotal and instrumental role in fostering self-determination among their children with ID or ASD⁶⁾. Zhang et al indicated that parenting styles significantly influence children's development of self-determination⁷⁾. In Contrast to educators, who also contribute to children's development, parents, as enduring influences and significant sources of support in their children' lives, possess a unique perspective from which they can observe and facilitate the cultivation of self-determination⁴⁾. Therefore, it is recommended to promote a parental perspective on the importance of self-determination and provide opportunities for their children to develop self-determination⁸⁾.

However, in the field of self-determination research, there has been a primary focus on educational institutions as the main environments for promoting self-determination, with less attention given to parents^{7,8)}. In mainland China and Taiwan, some researchers have recognized the importance of encouraging parental support in fostering self-determination within the family setting⁹⁻¹²⁾. Additionally, several researchers have examined the strategies used to support self-determination within the family context¹²⁻¹⁴⁾, with a particular emphasis on educators guiding and supporting parents in creating opportunities for self-determination skill development in children with disabilities at home^{15,16)}. However, in contrast to the focus on teachers, there is still a significant research gap regarding family involvement in promoting self-determination among children with disabilities¹³⁾. We lack knowledge about how much parents prioritize efforts to foster self-determination. Therefore, Carter et al. emphasized the importance of studying parental perspectives on self-determination to enhance our understanding in three key areas⁴⁾. Specifically, future research should explore the importance parents place on self-determination and the opportunities they provide, how parents assess a child's capacity for self-determination, and the factors that influence parents' perspectives on self-determination in children with disabilities.

Parental perspectives on self-determination are shaped by various factors. Firstly, parents from diverse cultural and economic backgrounds exhibit distinct beliefs and practices regarding their children's self-determination^{7,17)}. Wang et al. highlighted that Mandarin culture significantly differs from Western individualism culture, emphasizing the importance of belonging to groups and adjusting oneself to meet group needs¹⁸⁾. Secondly, children's grade levels are critical factors that influence parental perspectives on self-determination. Alrabiah revealed that parents of high school-aged children with ID were more inclined to provide their children with opportunities for self-determination at home and assigned higher ratings to their children's ability to exercise self-determination at this developmental stage¹⁹⁾. Meanwhile, Carter et al. indicated that parents consistently rated the importance and opportunities of self-determination skills as high, and the capacity of their children with ID or ASD as low, across grade levels, with only nominal increases among older children⁴⁾. Thirdly, disability categories are a crucial factor in predicting parental perspectives on self-determination. Due to the unique communication and social needs of children with ASD, they have lower levels of self-determination than children with ID^{20,21)}. Therefore, this study aimed to investigate whether geographic regions, children' grade levels, and disability

categories influence parental ratings of self-determination importance, opportunities, and capacity for their children.

There are many reasons why this study is to evaluate the perspectives of parents originating from both Fujian Province and Taiwan concerning the importance and opportunities of self-determination to examine difference and similarities in perspective of parents from Fujian Province and Taiwan, both immersed in Mandarin cultural regions, with respect to the concept of self-determination. Historically, the influence of Minnan culture, hailing from Fujian, has exerted a significant impact on Taiwanese culture across various domains^{22,23}). Simultaneously, the cooperation between Taiwan and Fujian have engendered frequent high-level educational activities and exchanges, culminating in a similarity in the special education systems of both regions^{24,25}). Furthermore, in the field of special education, self-determination has developed rapidly in both Fujian and Taiwan. Researchers have increasingly recognized the importance of promoting self-determination skills among children with disabilities in these regions²⁶⁻²⁸). Consequently, we postulate that there may exist certain parallels in the perspectives of parents in Fujian and Taiwan regarding importance, opportunities and children's capacity associated with self-determination. However, Deng et al. have indicated that the progress of the special education system in China proceeded slowly due to the continuous political turmoil and adverse economic conditions that endured for nearly a century²⁹). Moreover, the two regions diverge in terms of their levels of economic development³⁰). Gan and You have also asserted that special education is gaining more rapid traction in Taiwan in contrast to Fujian Province²⁴). Consequently, we hypothesize that parents in Taiwan attach a greater significance to self-determination, afford their children more opportunities to exercise self-determination, and exhibit higher levels of self-determination in their children, in comparison to parents in Fujian Province.

The purpose of this study is to assess the perspectives of parents from Fujian and Taiwan regarding the importance and opportunities for self-determination at home, as well as their children's ability to exercise self-determination. Additionally, we will examine the factors that influence parents' perspectives. It is important to note that this study focuses on how parents in Mandarin cultures perceive the self-determination of their children with ID or ASD, rather than comparing the perspectives of parents in the two regions. To achieve this objective, we used quantitative research methodologies to determine: (a) the relationship between parents' ratings of self-determination importance, opportunities, and capacity, and (b) the impact of factors such as geographic region, children's disability categories, and grade levels on parental perspectives of self-determination importance, opportunities, and capacity.

2. Method

2.1. Participants

A total of 404 parents from Fujian (306) and Taiwan (98) participated in this study, and all the participants' children served under the special education school categories of ID or ASD. When asked about their relationship to the focus child, 72.5% indicated they were mother; 23.0%, the father; 4.5% noted some other relationship (e.g., grandmother, grandfather). This study only sent instruments to parents of children receiving special education services under a primarily label of ID or ASD, 243 (60.1%) of children were identified by their parents as having a primary special education category of ID, 114 (28.2%) as having ASD, 47 (11.6%) as having both ID and ASD. Their average age was 12.98 years ($SD = 3.74$, range = 3 to 22). 170 (42.1%) in pre-school stage, 123 (30.4%) in middle school stage and 111 (27.5%) in high school stage. For a more comprehensive understanding of the participant demographics, please refer to Table 1.

Table 1. Parent and Child Characteristics by Reported Geographic Region

Survey item	Fujian <i>n</i> = 306	Taiwan <i>n</i> = 98	Total <i>n</i> = 404
<i>Child's disability categories</i>			
ID	195(63.7)	48(49.0)	243(60.1)
ASD	69(22.5)	45(45.9)	114(28.2)
ID plus ASD	42(13.7)	5(5.1)	47(11.6)
<i>Child's grade level</i>			
Pre-school stage	131(42.8)	39(39.8)	170(42.1)
Middle school stage	92(30.1)	31(31.6)	123(30.4)
High school stage	83(27.1)	28(28.6)	111(27.5)
<i>Respondent's relationship to child</i>			
Father	80(26.1)	13(13.3)	93(23.0)
Mother	209(68.3)	84(85.7)	293(72.5)
other	17(5.6)	1(1.0)	18(4.5)

Note. Given that there were only 15 parents of kindergarten children involved in the study (14 from Fujian and 1 from Taiwan), the kindergarten stage was merged with the elementary school stage to establish the preschool stage.

2.2. Instrument

Data were collected using an online questionnaire form. The survey instrument targeting parents encapsulated three pivotal dimensions: the importance of self-determination for their child, the opportunities for fostering self-determination in home environment, and the extent to which their child demonstrates self-determination.

Firstly, the importance of self-determination skills was assessed, employing the framework expounded by Stang et al.³¹⁾. It encompassed eight domains of self-determination skills, each item included a brief introduction representing the domain. For example, “*Children can identify their interests, express their preferences, and make choices*” was provided below the “choice-making” item. The wording, examples, and scale anchors for each item adhered to the standards set forth in the surveys conducted by Wehmeyer et al. and Stang et al.^{31,32)}. A 5-point Likert-type scale was employed for rating, ranging from low importance (1) to high importance (5). The instrument demonstrated robust internal consistency, with coefficient α reliabilities calculated on the current sample of .96 for the scale. Table 2 provides a list of these items.

Secondly, the extent of opportunities for self-determination within the domestic domain was assessed, utilizing the parental version of the AIR Self-Determination Scale, as formulated by Wolman et al.³³⁾. This section centers on rating the children's chances to use their knowledge and abilities within the home environment. Table 2 provides an inventory of these items. Each item in this section was rated using a 5-point, Likert-type scale ranging from never (1) to always (5). The instrument demonstrated strong internal consistency, with coefficient α reliabilities computed on the current sample of .85 for the scale.

Thirdly, we applied the parental version of the AIR Self-Determination Scale to assess the degree of children's capacity about self-determination within the home environment. This facet focuses on quantifying the alignment of children's

convictions about their beliefs regarding their necessities, desires, and capabilities with their expectations, choices, actions, and results. Table 2 provides a list of these items. Each item in this section was rated using a 5-point, Likert-type scale ranging from very never (1) to always (5). The instrument demonstrated strong internal consistency, with coefficient α reliabilities computed on the current sample of .94 for the scale.

Table 2. Items of the Survey Instrument

Item
<i>Self-determination importance</i>
1. Choice-making skills is important for disabilities.
2. Decision-making skills is important for disabilities.
3. Problem-solving skills is important for disabilities.
4. Goal setting and attainment skills is important for disabilities.
5. Self-advocacy/leadership skills is important for disabilities.
6. Self-efficacy skills is important for disabilities.
7. Self-management/self-regulation is important for disabilities.
8. Self-awareness/self-knowledge is important for disabilities.
<i>Self-determination opportunities</i>
1. At home, people listen when my child talks about what (s)he wants and is good at.
2. At home, people let my child know that (s)he can set his or her own goals to get what (s)he wants or needs.
3. At home, my child has learned how to make plans to meet his or her own goals and to feel good about them.
4. At home, my child is allowed to act on his or her plans right away.
5. At home, my child has someone to tell him or her when (s)he is meeting his or her own goals.
6. At home, people understand my child when (s)he has to change plans to meet his or her own goals. They offer advice and encouragement.
<i>Self-determination capacity</i>
1. My child knows what (s)he needs, likes, and is good at.
2. My child sets his or her own goals to satisfy wants or needs. (S)he thinks about his or her own abilities when setting goals.
3. My child figures out how to meet goals alone. (S)he makes plans and decides what to do independently
4. My child begins work on plans to meet his or her goals as soon as possible.
5. My child checks his or her own progress when completing his or her plan. (S)he asks others what they think of his or her progress.
6. If my plan doesn't work, my child tries another one to meet his or her goals.

2.3. Data Analysis

Data analysis commenced with a comparative analysis of mean ratings concerning the importance, opportunities, and capacity of self-determination skills within the two distinct geographic regions (Fujian vs. Taiwan). Due to our limited sample size, a Shapiro-Wilk test of normality was conducted to determine if the “self-determination importance”, “self-determination opportunities” and “self-determination capacities” followed a normal distribution. The results indicated a

significant deviation from normality for all self-determination importance ($W = 0.91, p < .01$), self-determination opportunities ($W = 0.98, p < .01$) and self-determination capacities ($W = 0.98, p < .01$). Therefore, statistical analyses were performed, including Spearman's rank correlation coefficient, to investigate potential interactions between self-determination importance, self-determination opportunities, and self-determination capacity. Additionally, the Mann-Whitney U test and Kruskal-Wallis tests were utilized to examine parents' rated self-determination importance, opportunity, and capacity regarding geographic regions (Fujian vs. Taiwan), children's disability categories (ID vs. ASD vs. ID plus ASD), and grade levels (pre-school stage vs. middle school stage vs. high school stage). All statistical analyses were conducted using SPSS version 26 with a significance level of $p < .05$.

Ethical considerations encompassed the preservation of participant anonymity, the acquisition of informed consent, and the protection of data privacy within the online survey milieu. Participants were apprised of the study's objectives, and the emphasis on their voluntary engagement persisted throughout the entirety of the data collection process (Application Number: 20210150).

3. Results

3.1. Relationship of Parents' Rating Self-Determination Importance, Opportunities, and Capacity

Table 3 displays the average ratings given by parents for each survey item. Table 3 presents the mean assessments provided by parents for all survey items, categorized based on parents' geographic region, children's disability categories, and grade level. It highlights that parents from different subgroups demonstrate similar ratings when assessing the importance, opportunity, and capacity of self-determination. Additionally, Spearman's rank correlation was computed to assess the relationship among parents' ratings of "self-determination importance", "self-determination opportunity", and "self-determination capacity." There was found to be a statistically significant and positive relationship between parents' ratings of "self-determination opportunity" and "self-determination importance" ($r_s(402) = .306, p < .001$). Moreover, a positive relationship between parents' ratings of "self-determination opportunity" and "self-determination capacity" ($r_s(402) = .583, p < .001$). However, there was no statistically significant relationship between "self-determination importance" and "self-determination capacity" ($r_s(402) = .098, p > .05$).

To examine the relationship between parents' ratings of "self-determination importance," "self-determination opportunity," and "self-determination capacity" based on parents' geographic region, children's disability categories, and grade level, another Spearman's rank correlation was conducted. Firstly, there was a statistically significant positive relationship was found between parents' ratings of "self-determination opportunity" and "self-determination importance" in parents from Fujian ($r_s(306) = .31, p < .01$) and Taiwan ($r_s(306) = .31, p < .01$). Furthermore, a positive relationship was observed between parents' ratings of "self-determination opportunity" and "self-determination capacity" in Fujian ($r_s(306) = .60, p < .01$) and Taiwan ($r_s(306) = .60, p < .01$). However, there was no statistically significant relationship between "self-determination importance" and "self-determination capacity" in either Fujian ($r_s(306) = .11, p > .05$) or Taiwan ($r_s(98) = .07, p > .05$). Secondly, there was a statistically significant positive relationship found between parents' ratings of "self-determination opportunity" and "self-determination importance" for parents of children with ID ($r_s(243) = .399, p < .01$) or ASD ($r_s(114) = .236, p < .05$). However, no significant relationship was identified for parents of children with both ID and ASD ($r_s(47) = .102, p > .05$). Furthermore, a positive relationship was observed between parents' ratings of "self-determination opportunity" and "self-determination capacity" for parents of children with ID ($r_s(243) = .587, p < .01$), ASD ($r_s(114) = .589, p < .01$), or both ID and ASD ($r_s(47) = .536, p < .01$). Additionally, a statistically significant relationship

was found between "self-determination importance" and "self-determination capacity" for parents of children with ID ($r_s(243) = .155, p < .05$). However, no significant relationship was observed for parents of children with ASD ($r_s(114) = .022, p > .05$) or both ID and ASD ($r_s(47) = .035, p > .05$). Thirdly, there is a statistically significant positive relationship between parents' ratings of "self-determination opportunity" and "self-determination importance" for parents whose children are in the pre-school stage ($r_s(170) = .27, p < .01$), middle school stage ($r_s(123) = .35, p < .01$), or high school stage ($r_s(111) = .35, p < .01$). Additionally, a positive relationship was observed between parents' ratings of "self-determination opportunity" and "self-determination capacity" for parents whose children are in the pre-school stage ($r_s(170) = .58, p < .01$), middle school stage ($r_s(123) = .48, p < .01$), or high school stage ($r_s(111) = .66, p < .01$). Furthermore, no statistically significant relationship was found between "self-determination importance" and "self-determination capacity" for parents whose children are in the pre-school stage ($r_s(170) = .11, p > .05$), middle school stage ($r_s(123) = .08, p > .05$), or high school stage ($r_s(111) = .11, p > .05$).

Table 3. Mean Ratings on Each Survey Item

Survey item	Geographic Regions			Disability Categories				Grade Level			
	Fujian <i>M(SD)</i>	Taiwan <i>M(SD)</i>	<i>P</i>	ID <i>M(SD)</i>	ASD <i>M(SD)</i>	ID & ASD <i>M(SD)</i>	<i>P</i>	Elementary <i>M(SD)</i>	Middle <i>M(SD)</i>	High <i>M(SD)</i>	<i>P</i>
<i>Self-determination importance</i>											
Item 1	4.21 ± .84	4.16 ± .90	.82	4.2 ± .87	4.17 ± .83	4.11 ± .81	.45	4.17 ± .86	4.27 ± .81	4.15 ± .89	.56
Item 2	4.04 ± .90	4.10 ± .89	.44	4.03 ± .90	4.11 ± .91	4.02 ± .85	.52	3.98 ± .95	4.13 ± .83	4.08 ± .88	.46
Item 3	4.04 ± .90	4.17 ± 1.0	.07	4.04 ± .93	4.13 ± .99	4.11 ± .76	.40	4.01 ± .98	4.23 ± .85	4.00 ± .92	.09
Item 4	4.03 ± .91	4.09 ± .97	.36	4.03 ± .92	4.11 ± .97	3.96 ± .86	.35	4.00 ± .96	4.14 ± .87	4.00 ± .92	.43
Item 5	4.17 ± .84	4.05 ± .93	.33	4.13 ± .86	4.18 ± .87	4.13 ± .85	.81	4.07 ± .91	4.28 ± .84	4.09 ± .80	.05
Item 6	3.98 ± .93	4.07 ± 1.03	.19	3.98 ± .96	4.09 ± .96	3.94 ± .89	.36	3.92 ± .98	4.11 ± .94	4.02 ± .91	.22
Item 7	3.96 ± .96	3.97 ± 1.04	.70	3.95 ± .94	3.99 ± 1.05	3.91 ± .97	.68	3.91 ± 1.02	4.02 ± .94	3.97 ± .95	.69
Item 8	4.07 ± .92	4.09 ± 1.0	.60	4.07 ± .91	4.11 ± .98	4.04 ± 1.0	.71	4.00 ± .99	4.16 ± .93	4.10 ± .87	.35
Total	4.06 ± .78	4.09 ± .85	.55	4.06 ± .79	4.11 ± .84	4.03 ± .76	.53	4.01 ± .84	4.17 ± .75	4.05 ± .79	.24
<i>Self-determination opportunities</i>											
Item 1	4.13 ± .84	4.18 ± .66	.88	4.15 ± .79	4.15 ± .74	4.06 ± .99	.98	4.12 ± .81	4.17 ± .74	4.14 ± .84	.94
Item 2	3.87 ± .83	3.95 ± .83	.38	3.93 ± .83	3.86 ± .80	3.72 ± .88	.21	3.84 ± .83	3.97 ± .79	3.88 ± .86	.29
Item 3	3.09 ± 1.05	3.24 ± 1.0	.10	3.21 ± 1.04	3.05 ± 1.02	2.85 ± 1.0	.05	3.06 ± 1.10	3.07 ± 1.00	3.28 ± .96	.15
Item 4	3.04 ± 1.08	3.17 ± .97	.27	3.14 ± 1.05	3.07 ± 1.05	2.70 ± 1.04	.02	2.98 ± 1.07	3.00 ± 1.02	3.29 ± 1.06	.03
Item 5	4.15 ± .77	4.18 ± .76	.73	4.15 ± .74	4.26 ± .79	3.96 ± .86	.06	4.15 ± .78	4.15 ± .80	4.18 ± .73	.98
Item 6	3.79 ± .96	3.95 ± .91	.17	3.84 ± .96	3.85 ± .89	3.68 ± 1.07	.68	3.76 ± .91	3.85 ± .97	3.89 ± 1.00	.32
Total	3.68 ± .71	3.78 ± .64	.13	3.74 ± .70	3.71 ± .65	3.50 ± .74	.08	3.65 ± .69	3.70 ± .68	3.78 ± .72	.29
<i>Self-determination capacity</i>											
Item 1	3.30 ± 1.03	3.29 ± .89	.78	3.38 ± .97	3.22 ± 1.02	3.02 ± 1.01	.04	3.21 ± .99	3.28 ± 1.00	3.44 ± .99	.14
Item 2	2.80 ± 1.05	2.90 ± 1.0	.35	2.94 ± 1.09	2.68 ± .99	2.55 ± .75	.02	2.67 ± 1.07	2.76 ± .98	3.12 ± 1.01	.00
Item 3	2.78 ± 1.03	2.72 ± .98	.66	2.85 ± 1.09	2.67 ± .92	2.55 ± .75	.12	2.62 ± .99	2.72 ± 1.03	3.04 ± 1.00	.00
Item 4	2.69 ± 1.00	2.62 ± .95	.72	2.77 ± 1.03	2.57 ± .91	2.40 ± .90	.06	2.56 ± 1.03	2.59 ± .94	2.92 ± .95	.00
Item 5	2.61 ± 1.07	2.48 ± 1.01	.29	2.73 ± 1.12	2.33 ± .86	2.40 ± 1.01	.00	2.44 ± 1.09	2.54 ± 1.00	2.85 ± 1.02	.00
Item 6	2.64 ± 1.05	2.60 ± 1.02	.96	2.74 ± 1.10	2.49 ± .91	2.36 ± .94	.04	2.50 ± 1.04	2.60 ± 1.01	2.86 ± 1.06	.01
Total	2.80 ± .91	2.77 ± .85	.92	2.90 ± .95	2.66 ± .79	2.55 ± .76	.02	2.67 ± .90	2.75 ± .86	3.04 ± .87	.00

3.2. Parents' Perspectives on Self-Determination Importance, Opportunities, and Capacity

Firstly, a Mann-Whitney U test was conducted to determine if there was a significant difference in the perceived importance of self-determination between parents from Fujian ($M = 4.06 \pm .78$) and Taiwan ($M = 4.09 \pm .85$). The results showed no significant difference ($Z = .60, p > .05$). Furthermore, a Kruskal-Wallis analysis was performed to examine the differences in self-determination importance among different disability categories. The results indicated no significant differences ($H(2) = 1.26, p > .05$). The mean rank values were 199.28 for the children with ID group, 212.58 for the ASD group, and 194.72 for the ID plus ASD group. Another Kruskal-Wallis analysis was conducted to assess the differences in self-determination importance among different children's grade levels. The results revealed no significant differences ($H(2) = 2.89, p > .05$). Specifically, the mean rank values were 195.21 for the pre-school stage, 217.27 for the middle school stage, and 197.31 for the high school stage.

Secondly, a Mann-Whitney U test was employed to compare the assessments of self-determination opportunity between parents in Fujian ($M = 3.68 \pm .71$) and Taiwan ($M = 3.78 \pm .64$). The results indicated that there were no significant differences ($Z = 1.51, p > .05$). Furthermore, a Kruskal-Wallis analysis was performed to examine the perceived opportunities for self-determination across different disability categories. The results revealed no significant difference ($H(2) = 4.94, p > .05$). The mean rank values were 206.37 for the children with ID group, 208.82 for the ASD group, and 167.15 for the ID plus ASD group. Subsequently, another Kruskal-Wallis analysis was conducted to compare parents' assessments of self-determination opportunity across children in different grade levels. Once again, no significant differences were observed ($H(2) = 2.50, p > .05$). The mean rank values were 193.44 for the pre-school stage, 202.93 for the middle school stage, and 215.89 for the high school stage.

Thirdly, a Mann-Whitney U test was used, and it revealed no significant difference in perceived self-determination capacity ($Z = -.90, p > .05$) between parents from Fujian ($M = 2.80 \pm .91$) and Taiwan ($M = 2.77 \pm .85$). Furthermore, a Kruskal-Wallis analysis was performed. The results showed a significant difference in perceived self-determination capacity across children's disability categories ($H(2) = 7.91, p < .05$). The mean rank values for these categories were as follows: 214.54 for the children with ID group, 191.25 for the ASD group, and 167.52 for the ID plus ASD group. In addition, a Mann-Whitney U test was conducted for multiple comparison analysis, revealing a significant difference between the children with ID group and the children with ID plus ASD group ($p < .05$). Another Kruskal-Wallis analysis was employed. The findings indicated a statistically significant difference in perceived self-determination capacity across different grade levels ($H(2) = 13.31, p < .01$). The mean rank values for these categories were as follows: 184.69 for the pre-school stage, 197.09 for the middle school stage, and 235.77 for the high school stage. Furthermore, a Mann-Whitney U test was conducted for multiple comparison analysis, revealing a significant difference between the high school group and the pre-school group ($p < .01$), as well as between the high school group and the middle school group ($p < .05$).

4. Discussion

4.1. Relationship of Parents' Rating Self-Determination Importance, Opportunities, and Capacity

This study found that parents' perception of the importance of self-determination affected how they provided opportunities for self-determination in their homes. This contradicts previous research^{4,34)}, which suggested that although parents recognized the importance of self-determination^{35,36)}, they often struggled to translate this recognition into concrete opportunities for their children^{37,38)}. The discrepancy may be since parents in Fujian and Taiwan, unlike those in Western

countries where self-determination education has always been valued, are increasingly recognizing the importance of self-determination in their children's development. As a result, they are realizing the limitations of relying solely on parental authority as an educational strategy³⁹⁾. In this context, although developing self-determination skills may present challenges, parents desire better outcomes for their children than what they have observed in the past and are willing to make an effort to respect their children's desires and choices in their daily lives⁴⁰⁾. However, when comparing the evaluations of parents with different types of disabilities, no correlation was found in the responses of parents of children with both ID and ASD. Although parents of children with ID and ASD have also become more aware of the importance of self-determination in Fujian and Taiwan^{7,41)}, these parents may face challenges in providing opportunities for self-determination due to the cognitive and social difficulties associated with both ID and ASD³⁹⁾. As a result, there is a disconnect between the increasing importance parents place on self-determination and the actual opportunities available for their children. There is a growing awareness among parents in Fujian and Taiwan about the importance of promoting self-determination. It is crucial to prevent a widening gap between parents' perception of self-determination's importance and the actual opportunities available for long-term development. Therefore, research should focus on practical self-determination strategies that can be easily applied at home. This will enable parents to effectively translate their understanding of self-determination's importance into actionable steps that enhance their children's ability to be self-determined.

Furthermore, parents who are more inclined to provide their children with opportunities for self-determination generally perceive their children's ability to exercise self-determination as higher. These findings align with the research conducted by Carter et al. and Morán et al.^{42,43)}. Wehmeyer and Schwartz have suggested that parents can observe their children's growth and progress by offering them opportunities for self-determination⁴⁴⁾. This includes witnessing their children's ability to make independent decisions, express their thoughts and needs, and show increased confidence and independence. As a result, these advancements will increase parents' confidence in their children's capacity to exercise self-determination. However, research suggests that children and youth with ID or ASD often have limited opportunities and support to engage in self-determined actions compared to children with other disabilities or no disabilities^{4,45)}. This lack of opportunity may hinder their ability to effectively develop self-determination skills. Therefore, further research should specifically focus on factors that are unique to individuals with ID or ASD and factors that can be modified to improve services and support.

Moreover, the study found that the parents' assessment of their children with ASD's capacity for self-determination was not affected by the importance of self-determination. This finding aligns with previous research conducted by Tomaszewski et al. and Pierson et al.^{46,47)}. These studies suggest that although parents recognize the importance of self-determination, they may have doubts about their child's ability to achieve it due to the specific communication and social needs associated with ASD. However, the study also revealed a positive correlation between the perceived importance of self-determination in parents of children with ID and the actual self-determination capacity of those children. As parents increasingly recognize the importance of self-determination for their children, they become more motivated to understand their child's potential to achieve this goal. Several studies have shown that implementing self-determination strategies for children with ID has yielded positive outcomes^{12,15)}, and individuals with ID exhibit higher levels of self-determination compared to those with ASD^{20,48)}. Therefore, although almost all parents recognize the importance of self-determination, parents of children with ID are encouraged by previous research findings to believe in their child's self-determination capacity. In future research, it is crucial to address the misconception that individuals with ID and ASD are incapable of being self-determined. One way to accomplish this is by providing accurate and comprehensive education and information to help parents understand

the self-determination capabilities of children with ID and ASD. This can involve sharing research findings and success stories with parents, as well as explaining how children can develop self-determination through appropriate support and training.

4.2. Parental Perspectives on Self-Determination Importance

The study found that parental perspectives on the importance of self-determination skills for their children were not influenced by the respondent's geographic region, their child's grade level, or disability categories. These findings were consistent with the studies conducted by Carter et al., Chu, and Wang et al.^{4,41,49}. Chu's and Wang et al.'s studies indicated that parents in Fujian and Taiwan fully recognize the importance of self-determination^{41,49}. Additionally, Carter et al. indicated that parents clearly emphasized the importance of their children with ID or ASD learning self-determination skills at all stages of development⁴. Recognizing the importance of self-determination is a critical first step in providing children with opportunities and support, as noted by Sands et al.⁵⁰. Wehmeyer et al. and Palmer et al. also indicated that enabling children to learn and develop the necessary abilities is a fundamental initial step towards their becoming self-determined adults^{51,52}. Through the results of this study, we have discovered that parents are highly aware of the importance of their child's self-determination skills. This finding highlights the potential for parental involvement in guiding their child's self-determination. Future research can explore the idea of fostering collaboration between schools and parents to offer more comprehensive instruction and support for children in developing their self-determination skills.

4.3. Parental Perspectives on Self-Determination Opportunities

The study found that parental perspectives on their children's self-determination opportunities were not influenced by geographic region. Research on self-determination in special education started earlier in Taiwan than in Fujian³⁸. Therefore, we predicted that parents in Taiwan, influenced by the education system, would be more likely to provide self-determination opportunities compared to parents in Fujian. However, the study did not find any significant difference in the provision of self-determination opportunities between the two regions. In Taiwan, there is substantial evidence supporting the effectiveness of self-determination instruction in schools. However, there is a lack of research on how family involvement impacts self-determination in children with disabilities¹³. Teachers lack sufficient knowledge on how to work with parents to enhance children's self-determination skills, and parents also have limited understanding of this topic¹⁴. In recent years, researchers in mainland China, including Fujian, have begun to highlight the importance of teachers actively communicating and exchanging ideas with parents to enhance children's self-determination. This allows parents to gain a better understanding of their children's self-determination abilities and supports them in creating opportunities for their children to develop this skill. Although there have been studies on this topic, most of them are still in the theoretical stage and lack specific methodologies^{15,16}. Therefore, the insufficient research conducted in both regions regarding families may be the reason for the absence of a notable distinction in parental perspectives^{7,53}.

The study found no significant differences in the accessibility of self-determination opportunities for parents of children with ID and ASD. This contrasts with the findings of Chou et al. and Wehmeyer et al., who suggested that children with ASD have fewer self-determination opportunities compared to children with ID because of their unique communication and social needs^{20,21}. Specifically, difficulties in social interaction and communication can make it challenging for children with ASD to express their desires at home, making it especially difficult for parents to provide self-determination

opportunities⁴⁵). Additionally, scholars in Western countries have focused on children with ID from an early stage and have proposed various strategies to foster self-determination^{54,55}). Consequently, parents in Western countries may face fewer obstacles in providing self-determination opportunities for their children with ID, as they can rely on established approaches. This study specifically examined parents whose children with ID and ASD attend special education schools. The lack of divergence in this study may be due to the fact that individuals with ASD are often placed in special education schools that primarily focus on intellectual disability education in Fujian and Taiwan⁵⁶). Therefore, parents may challenge to accurately differentiate between the specific challenges they face in self-determination education for children with ID and those with ASD. Additionally, it is crucial to provide support for children with ID or ASD when offering them self-determination opportunities. However, parents in Fujian and Taiwan lack the necessary knowledge to effectively support and create opportunities for self-determination in both children with ID and children with ASD^{13,15}). Future research should prioritize the development of customized self-determination guidance programs for parents, specifically tailored to different disabilities. These programs should aim to empower parents to facilitate self-determination in their children, particularly within the home environment.

The study found no significant difference in the availability of self-determination opportunities for parents across different grade levels. This finding contradicts previous research conducted by Alrabiah and Biggs et al., who suggested that parents of high school children with ID or ASD were more likely to provide self-determination opportunities compared to parents of children in primary and middle school^{19,57}). The reason for this discrepancy could be the increased focus on self-determination in high school education in Western countries^{58,59}). Several studies have demonstrated a direct correlation between self-determination and positive post-school outcomes. Test et al. and Shattuck et al., for instance, have highlighted that the development of self-determination skills can assist children with ID or ASD in successfully transitioning from school to society, enrolling in postsecondary education, and finding employment^{60,61}). Consequently, both high school educators and parents exhibit a greater inclination to cultivate children's self-determination abilities⁶²). Conversely, parents in Fujian and Taiwan often view self-determination skills as separate from other abilities, failing to grasp the positive impact of their development on their child's overall competencies in areas such as academic performance, quality of life, and vocational skills^{63,64}). To promote the provision of self-determination opportunities for parents of children of all ages, it is crucial to raise awareness that enhancing self-determination in children with disabilities leads to improvements in all aspects of their life and learning abilities.

4.4. Parental Perspectives on Self-Determination Capacity

Contrary to the initial hypothesis, parental perspectives on their children's capacity for self-determination skills were not influenced by the geographic region. Studies by Wang et al. and Wang et al. have both indicated that Taiwan offers more opportunities for children to practice and develop self-determination in school settings^{28,41}). In the other hand, the term "self-determination" is noticeably absent from special education instruction in mainland China⁶⁵). Based on this information, it was expected that parents in Taiwan would rate self-determination higher than parents in Fujian. However, contrary to expectations, there was no significant difference in ratings of self-determination capacity between the two regions. This may be because Taiwanese parents were not actively involved in teaching self-determination skills to their children outside of school and therefore may not be aware of their children's level of self-determination. Therefore, the majority of parents were unaware of their children's level of self-determination capacity and rated them low overall.

The study found that parental perspectives on the capacity of self-determination skills varied depending on the child's disability category. Parents rated self-determination ability higher for children with ID only compared to children with both ID and ASD. This is consistent with study of Carter et al. and Wehmeyer et al.^{4,54}). The development of self-determination skills is influenced by a combination of individual factors (such as the degree of disability) and systemic factors (such as the school and community environment)^{35,47}). However, at the individual level, children with ID and ASD are known to experience more difficulties in sociocommunicative functioning and have higher levels of associated psychiatric issues^{61,66}). Meanwhile, at the systemic level, youth with ID and ASD were found to have lower levels of participation in home and school activities compared to youth with ID or ASD only⁶⁷). Therefore, it is not surprising that parents with ID and ASD tend to receive lower scores on measures of their children's self-determination capacity.

The study found that parents' perspectives on their children's self-determination skills varied depending on the grade level. However, it was observed that parents tended to rate high school children's self-determination abilities higher than children in other grade levels, while no significant differences were found among preschool and middle school children. This finding is consistent with Carter et al.'s findings, which showed that parents consistently rated their children's self-determination capacity as low, regardless of age, with only slight increases among older children⁴). This result may be attributed to the belief held by some parents that children will naturally develop self-determination skills as they mature into adults. The absence of differences at other grade levels does not mean that a child's capacity for self-determination remains the same as they get older. It is possible that parents are basing their ratings on what they would expect from their child compared to peers of a similar age⁴).

5. Limitation

There were several limitations to this study. Firstly, our sample does not fully represent the ethnic and racial diversity found nationwide. The parents from Fujian cannot be considered representative of mainland China as a whole. Moving forward, it is crucial to conduct more comprehensive research to explore parents' perspectives on self-determination across diverse cultural and geographical contexts. Secondly, in our efforts to help parents understand the eight skills that make up self-determination competencies, we have supplemented the introductory explanations based on Stang et al.'s research. However, it should be noted that Stang et al. and Wehmeyer et al.'s framework has primarily been used in the field of education. Directly applying this framework to parents may introduce bias into the results. Lastly, we did not compare the ratings provided by parents of children with disabilities to those of parents of same-age children without disabilities. This comparison could have provided insights into whether our findings reflect normal patterns among all children or if they are specific to children with disabilities.

6. Conclusion

Children with ID or ASD often need explicit instruction and support to develop and practice important self-determination skills. In the past, research on interventions focusing on these skills has mainly been conducted in educational settings. However, since parents play a significant role in a children's life, they likely have a crucial impact on the acquisition and application of self-determination skills in children with developmental disabilities. This study explored the perspectives of parents regarding the self-determination of their children with ID and ASD within the Mandarin culture. The study indicates that parents' understanding of the importance of self-determination influences how they create opportunities for their

children to exercise these skills at home. Furthermore, parents who are more inclined to provide their children with chances to practice self-determination tend to have a more positive perception of their children's ability to do so. However, this correlation is influenced by the specific type of disability that the child has. Additionally, our findings suggest possible connections between a child's disability category or grade level and parents' observations of their children's capacity for self-determination. In recent years, there has been a growing focus on self-determination in Mandarin cultural areas such as Taiwan and Fujian. Consequently, self-determination interventions have been gradually introduced in the field of education, and their effectiveness has been partially validated. However, due to the lack of research involving parents, it is crucial for future studies to address this gap in the literature and enhance the evidence base for interventions.

Based on the findings of this study, there are several key areas that future research should focus on when developing guidance strategies for implementing self-determination at home. Firstly, it is crucial to provide parents with comprehensive information about the self-determination abilities of children, in order to dispel any misconceptions they may have that individuals with ID and ASD are incapable of being self-determined. Secondly, there is a need to develop more effective strategies for promoting self-determination in students with disabilities who struggle with verbal expression and other challenges, particularly those with ID and ASD. Lastly, it is important to emphasize the importance of teaching self-determination skills to children with disabilities at a young age and creating instructional programs specifically designed for young children, so that parents can help nurture their children's self-determination skills from an early stage.

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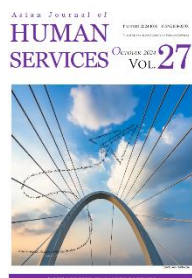
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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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CASE REPORT / ACTIVITY REPORT

Case Report: Changes in the Friendships of Persons with Intellectual Disabilities before and after Graduation from a Special Needs High School

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ABSTRACT

The purpose of this study was to clarify changes in relationships with friends and aspirations for relationships with friends before and after graduation from a special needs high school, and to examine the background of changes in aspirations for relationships, based on semi-structured interviews with three students with intellectual disabilities and their parents.

The results showed that two common features were observed in the subjects: they viewed their relationships with friends also enrolled in special needs programs as more favorable than relationships forged outside of school, and they continued to recognize their classmates as friends after graduation. Their aspirations regarding their relationships with friends changed between before and after they had experiences interacting with friends in places other than school. This change was the development of an aspiration to interact with classmates outside of school and after graduation.

These results suggest that the experience of interacting with friends in informal settings may be a factor in the development of the aspiration to forge and maintain relationships with friends in multiple settings, both before and after graduation. We also noted that the stability of relationships with friends who also have intellectual disabilities is accompanied by proximity. In this regard, vulnerability to environmental changes in relationships with friends among youth with intellectual disabilities may occur. The development of relationships with friends in multiple settings may contribute to the stability of relationships, that is, their maintenance before and after graduating from school.

Keywords: Early adulthood, Friendship, Intellectual disability, Late adolescence, Special needs education school

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Received: 2024/02/28 ; *Revised:* 2024/06/27 ; *Accepted:* 2024/09/19 ; *Published:* 2024/10/30



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1. Introduction

Friendships are important for individuals' well-being, regardless of disability status. These relationships can satisfy the basic need for human connection and belonging¹¹⁾. Adolescents spend more time with friends than they did during childhood, as they begin seeking independence from parents and family. In addition to their role as peers, friends also provide a sense of belonging within a larger peer group¹⁾. In adulthood, having friends is associated with higher subjective well-being¹⁸⁾. Friends are people we can talk to when we have a problem¹³⁾, and relationships with friends also enhance leisure time⁶⁾.

Relationships with friends change during life-stage transitions, especially as we move from school to employment⁹⁾. It is expected that relationships with friends also change for people with intellectual disabilities who are transitioning from special needs schools to employment; however, people with intellectual disabilities have typically faced many problems since beginning school. They often have fewer friends and fewer close friendships in their social lives than youths without disabilities^{10,19,22)}. They spend less time with friends outside of school than others^{7,19)} and have fewer friends who visit them at home⁵⁾. People with intellectual disabilities may have different characteristics than their typically developing peers, with respect to aspects of relationships and the changes that accompany the transition from school to work.

Few studies have examined friendships among people with intellectual disabilities longitudinally from school graduation to employment. Spruit et al. conducted a survey on friendships among college students with intellectual disabilities and graduates and reported that many graduates continue to keep in touch with friends they made while in college²⁰⁾; however, their report is limited to the presence or absence of interactions and does not specifically examine how friendships were maintained. To clarify the actual state of friendships among people with intellectual disabilities and the characteristics of changes accompanying the transition, it is necessary to focus on specific events with friends experienced by youths with intellectual disabilities before and after high school graduation. By focusing on specific events without disrupting the temporal context, it is possible to clarify how they want to spend time with their friends, or how they want to be with them, based on reports of their experiences with friends.

The purpose of this study is to provide a case study of the changes in people with intellectual disabilities' relationships with friends — and people's aspirations for and changes in relationships with friends — before and after high school graduation.

2. Method

2.1. Participants

Participants were three youths with intellectual disabilities. Student A and C were difficult to express in their own words what they have experienced. For student A and student C, interviews were conducted with both the students themselves and their parents to supplement their statements. As student B was able to express by his own words what he has experienced, regarding student B, we interviewed only the person himself. Student A and student C did not attend the school during the same period of time. The three attended the same special needs school, where they participated in leisure support activities organized by the authors. This leisure support activity was available for participation during special needs high school and after graduation. Their details were as follows.

2.1.1. Student A

Student A was in a special needs class throughout junior high school and then entered the high school section of the special needs school. The score WAIS-III IQ for student A was 62, when he was 20 years old. Student A had a grade of "B"(the degree of intellectual disability is relatively mild) on the Medical Rehabilitation Handbook. Student A was 20 years old at the time of our interview. Student A had been employed for three years. Prior to enrolling in high school, he had developed some life skills, such as the use of public transportation, shopping, and so on. He had not used social services for leisure support or participated in extracurricular activities. After graduation, Student A got a job in as a clerk at a supermarket with an employment program for people with disabilities.

2.1.2. Student B

Student B had a diagnosis of autism, in addition to intellectual disability. He was enrolled in regular classes in elementary school. The score WAIS-III IQ for student B was 72, when he was 20 years old. Student B had a grade of "B"(the degree of intellectual disability is relatively mild) on the Medical Rehabilitation Handbook. Student B first entered a special needs school upon entering junior high. He was 17 years old at the time of our first interview. After graduation, Student B was interviewed at ages 18 and 19. In total, he was interviewed three times. By the time he entered high school, like Student A, he had developed some life skills. Student B was also a member of a softball team based at a different school than the one he attended. After graduation, Student B got a job in the manufacturing industry as part of an employment program for people with disabilities.

2.1.3. Student C

Student C attended special needs classes during junior high school and then enrolled in the high school special needs department. The score Tanaka-Binet V IQ for student C was 48, when he was 16 years old. Student C had a grade of "B"(the degree of intellectual disability is relatively mild) on the Medical Rehabilitation Handbook. Student C was 17 years old at the time of our interview. The interview with Student C was conducted only while he was enrolled in the special needs high school. We dealt in detail with his aspirations for a relationship with his friends after graduation when he was nearing graduation. He had not yet developed life skills as student A and student B had prior to entering high school. Student C had used social services for leisure support with a shuttle service.

2.2. Procedure

The first author was in charge of education at the school where the three students were enrolled. The first author recorded episodes from observations of students' school lives, and semi-structured interviews were based on these episodes. Our semi-structured interviews were conducted in a university laboratory or at a special needs school. Questions focused on each individual's experiences of relationships with friends from before high school through after graduation, what these experiences meant to participants, and how they wanted to spend time with their friends. For Student A and his mother, the interview was conducted while referring to past episodes and the participant's words based on the first author's records. Student A and his mother spoke by reflecting on the past. For Student B, one interview was conducted during his second year of high school, and two more were conducted after he had graduated. For Student C and his father, the interview, including their aspirations of relationships with friends after graduation, was conducted during his third year of high school.

Interviews were recorded digitally and transcribed verbatim and averaged 60 minutes in length.

To ensure informed consent from the participants, an information letter was sent to parents and prospective participants; appropriately customized information about this study was provided. The decision to participate was left to the participants themselves and their parents. Ultimately, written consent to participate in the study was obtained from all participants and their parents.

2.3. Analysis

Analysis of the records was focused on social interaction with friends and perception of friends. The individuals' stories about and reflections on relationship with friends were elicited in chronological order. Analysis was conducted from the time they were in special needs high school to approximately three years after graduation through interviews with three students. Specifically, we categorized the episodes and the stories into three groups: "before entering a special needs high school," "while attending a special needs high school," and "after graduating from school". The episodes were further categorized into those related to in-school and out-of-school episodes. The prompts for the interviews were tailored to the individuals' stories about and reflections on relationship with friends. The transitions in relationships with friends before and after high school graduation were examined, and triggers that changed the aspiration for a relationship with a friend were extracted from the series of transitions. The authors checked with each other for the appropriateness for each step of the analysis of interviews.

3. Results

3.1. Student A

3.1.1. Relationships with friends during high school

Prior to entering high school, Student A had few opportunities to interact with friends.

During his first year of high school, Student A was reluctant to engage with his classmates. When his classmates spoke to him, he responded, but he preferred to be on his own. For instance, during recesses, he often read books alone. In his second year, he began to want to engage with other students. Student A played baseball or soccer or read with his classmates during recesses. Over winter vacation, Student A complained to his mother that he would be alone after graduation. When the first author asked him why he said this, Student A replied, "I would feel loneliness alone after graduation. But I have memories of my friends, so I'm okay." During his third year of high school, Student A wanted to spend time with his classmates after school, so he asked his mother about the transportation service his classmates used. Student A was able to spend time with his classmates after school, and he has maintained these contacts since graduating.

Student A also continued to participate in leisure support activities organized by the author, in which he had been a participant since he was still in school. Student A, as a senior, offered watermelons for the younger students in summer camp. After graduation, Student A did not develop any friendships outside of his school friends. Student A never interacted with work colleagues outside of work.

Student A and his mother reflected on his experiences and said the following. During his first year of high school, Student A was nervous because had just enrolled there. He had not spent much time with friends during junior high school. His mother said that Student A could not relate to his classmates as equals. In his second year of high school, new students entered the school, and he had the courage to spend time with them. His mother said that Student A began talking more at

home about his friends. Student A explained his feelings and fears of future loneliness to his mother, expressing that he was sad to leave his friends after graduation. His mother also remembered Student A telling her that he was lonely. In his third year of high school, Student A thought he would be happier if he spent time with friends not only at school, but also after school. Student A also told his mother that he did not want individual support from an aide, but would prefer to spend time with his classmates. Since graduating, seeing friends has been a good way for Student A to reduce his stress and get through anxious times. Student A was satisfied with the interaction with school friends in the transportation service and leisure support activities. There was no aspiration to meet with friends in other places.

3.1.2. How aspirations for relationships with friends changed

Student A participated in leisure support activities each year during school holidays. During his first year of high school, Student A told his mother about some activities he and his friends enjoyed, science experiments and drawing pictures. During his second year, Student A talked about classmates and older students with whom he participated in activities. Student A enthusiastically drew a picture of himself talking to another student who created a picture diary with him as part of their summer vacation homework. After that summer, Student A began spending time with his classmates during recess periods. Student A has continued participating in activities since graduating and has maintained contact with classmates from the special needs school. During his third year of high school, Student A insisted to his mother that he wanted to see his classmates after school. He began meeting them after school, with the support of an aide, and during leisure support activities.

3.2. Student B

3.2.1. Relationships with friends during high school

Student B could not talk with friends during junior high because of the differences in students' abilities. Once he began high school, Student B was able to make friends by talking with others for the first time.

During the fall break of his first year of high school, Student B enjoyed the companionship of his friends outside of school, following a teacher's advice. After that, Student B always met with friends after school and during holiday breaks. Since graduating, Student B has enjoyed the ongoing companionship of his friends from the special needs school.

Student B made plans with school friends to go to a hot spring or shopping on a holiday. Student B also continued to participate in leisure support activities organized by the author, in which he had been a participant since he was still in school.

As a member of another special needs school's softball team, Student B practiced diligently. In his second year of high school, the coach recommended Student B as a player for the national championship. Student B got along well with the coach and the older members of the team who coached him. All members of the team had mild intellectual disabilities, so Student B could enjoy talking with them. After graduation, Student B was on bad terms with a certain team member and his parents. This prompted Student B to say that he wanted be on the team with friends from his own school. Ultimately, Student B quit the softball team. After graduation, Student B quit the softball team, so his only friendships were with school friends. He rarely interacted with co-workers outside of the workplace.

Student B reflected on his experiences and said, "I can feel safer with friends from my school than from the softball club. I could have conversations with friends of the softball club, but I didn't like them so much. ... I'm still comfortable with

my classmates after graduation. It is difficult to make new friends outside of school friends.” When he had a problem in leisure time, he complained that he wanted to play sports with friends from school.

3.2.2. How aspirations for relationships with friends changed

During his first year at the special needs high school, Student B went to lunch with members of his softball team after practice one day. He had never done something like that before. Before and after this event, Student B knew he wanted to do this with his other friends from school. Student B said, “Softball club members are more like the general public. I want to communicate with friends from school like I do with them. ... I felt like the school had limitations about seeing friends after school. I had never had ‘normal’ experiences, like having lunch with friends out of school. ... I don’t have any friends who invite me to join for lunch or just for companionship.” He added, “I’m not in the habit of spending time with friends outside of school.” After his second year of high school, Student B took day trips after school or hung out with his classmates on their days off. “Strong encouragement from the teacher allowed me to meet with my friends during the holidays. Without this, we couldn’t have organized it.”

3.3. Student C

3.3.1. Relationships with friends during high school

Prior to entering high school, Student C had few opportunities to interact with friends. His father said he had no friends to talk to in his special needs classes. Student C reported coming back to the special needs class feeling sad after studying in a regular class. During his first year of high school, Student C was nervous and reluctant to engage in activities. However, after his second year of high school, Student C did not want to graduate because he did not want to be separated from his friends. Student C said, “I felt like we wouldn’t see each other much after graduation, and we wouldn’t be able to see each other for a long time.” His father added, “Student C has a strong sense of reassurance and being where he is when he is at the special needs school.” After the summer break in his third year, Student C began to view his high school friendships as something that would continue after graduation. Student C said, “Friends are friends, even if you don’t see them [all the time].”

3.3.2. How aspirations for relationships with friends changed

Student C had the experience of interacting with classmates and alumni at leisure support activities. Student C had no such experiences prior to entering high school. Before and after his experiences in leisure support activities, Student C said that he wanted to stay in touch with his friends after graduation, “If I go to camps and such events (the leisure support activities), Student D (a classmate) has been coming recently, so I can meet him.” His father added, “He seems particularly interested these days in alumni dinners after the leisure support activities in which he will be able to participate after graduation. He says a lot out loud these days. Something like, ‘I’m going to participate there next year, too.’ Until now, it was the first time for him to go somewhere with a group of friends. He woke up to [the pleasure of companionship].”

4. Discussion

This study investigated changes in participants’ relationships with friends before and after graduation from a special needs high school. In addition, their changing aspirations for relationships with friends were investigated. The results of

this study showed that the subjects had two things in common. First, they viewed special needs school friendships as more favorable than relationships made outside of school and they continued to recognize their classmates as friends after graduation. In student A and B, it was difficult to make friends outside of school friends after employment. Second, there was a change in their friendship aspirations between before and after the experience of interacting with friends in a setting other than school. This change was in their desire to interact with school friends outside of school and after graduation. Students A and B began to socialize with friends outside of school, and this has been maintained after graduation.

It has been shown that relationships with friends tend to be formed in the context of school among students with intellectual disabilities^{16, 21)}. The present results are consistent with these reports. After graduation, it has been shown that social relationships are less common among people with intellectual disabilities. Social relationships are limited to family members or support staff⁸⁾. Even for Student A and Student B, it was difficult for them to establish friendships outside of school friends after graduation. Under these circumstances, the fact that they were able to maintain relationships with their school friends was considered important for their post-employment life. In fact, Student A mentioned that socializing with her school friends helped reduce stress at work. Behind the maintenance of relationships with friends before and after school graduation, the aspiration to maintain relationships with friends arose during the school years. Out-of-school leisure support activities for Students A and C, and the meal after softball practice for Student B, were seen as experiences of socializing with friends in informal settings different from those possible within the school environment. These experiences may have played a role in the development of the aspiration to cultivate relationships with friends in multiple settings and to maintain these relationships after graduation. Although the number of close friends on the softball team was limited for Student B, the experience of social interaction, including informal situations on the softball team, was something that he could not have obtained from his school life. The absence of opportunities to interact with friends in informal settings was also thought to be related to the absence of experiences of interacting with friends prior to entering high school, the content of these experiences, and the absence of club activities. The leisure support activities experiences of Students A and C were also additional forms of support that were not school-set activities. However, Students A and B developed interactions outside of school, whereas Student C did not. The differences between the two groups were thought to be related to the degree of restrictions on adaptive functioning, such as the availability of public transportation. These results are shown in Figure 1.

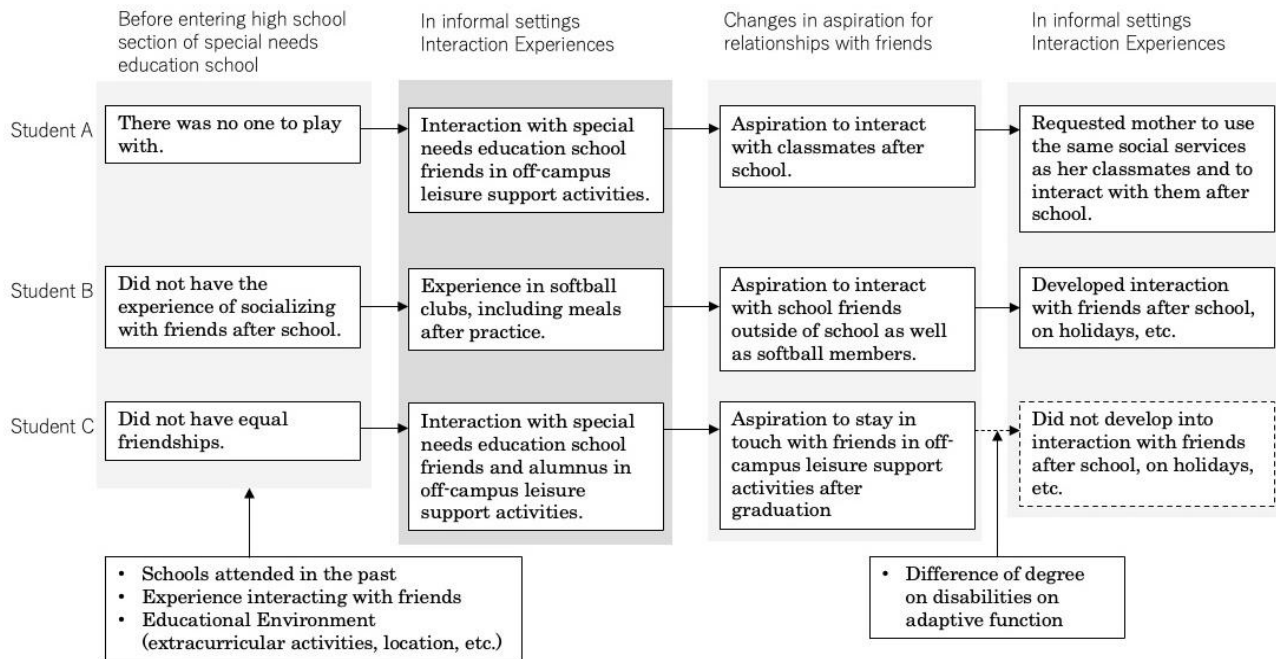


Figure 1. The process of changes in aspirations for relationships with friends

The development of an aspiration for relationships with friends was considered significant for building and maintaining these relationships. This is because friendships are voluntary, based on equality and reciprocity in essence. For empirical and theoretical purposes, friendship is best understood to be “a close, mutual, and voluntary dyadic relationship”¹⁷⁾. Characterized by high levels of reciprocity and perceived equality, friends share a mutual liking of one another and engage in positive interactions in which there exist expectations from both members of the dyad of companionship, security, instrumental help, and emotional support²⁾. Without these aspirations for relationships with friends, support for building the relationships among youths with intellectual disabilities would not be considered. At the very least, it may be necessary to consider support for nurturing these aspirations in special needs high school education. For example, it is not enough to simply provide teacher-led out-of-school trips and have students learn adaptive skills such as how to use public transportation. It may be necessary to set up situations in which students with intellectual disabilities can make self-decisions about who they want to go with and where they want to go.

Next, we discuss the effects of the development of relationships with friends in multiple settings on the maintenance of these relationships themselves. The importance of developing relationships with friends in multiple contexts has been shown regarding the stability of friendships between typically developing youths¹⁵⁾. One characteristic of friendships among people with intellectual disabilities is stability based on spending a lot of time together²⁰⁾. During the school year, classmates are often cited as friends of students with intellectual disabilities⁴⁾; however, the stability of these friendships often involves proximity^{10,12)}. Because of the stability associated with proximity, friendships may break down when meeting at school is no longer possible. It has been suggested that, as high school, related programs, and family support ends or becomes less stable, it may be more difficult for people with intellectual disabilities to maintain contact with existing friends and to find others with whom to build friendships¹²⁾. The relationship between stability and the development of friendships in multiple contexts has not been thoroughly examined. Different findings have been announced regarding

the development of friendships in multiple contexts in people with intellectual disabilities, including mild intellectual disabilities. Cullus reported that friendships in people with intellectual disabilities tend to be established only in settings arranged by supporters or professionals³⁾. However, Nasr et al. reported that, in persons with intellectual disabilities who have a strong interest in friendships, they can be proactive on their own and extend friendships across contexts and situations different from the initial setting of their meeting¹⁴⁾. The results of this study indicate that even individuals with mild intellectual disabilities who had not developed relationships with friends in multiple contexts can spontaneously develop friendships outside of school by developing an aspiration for friendship. Even without the adaptive skills to develop friendships in multiple contexts, as seen with Student A, he was able to meet with friends out of school and after graduation by asking his parents for support. The aspiration to engage with friends in multiple contexts, and to continue to engage with friends after graduation, is important. In addition, the development of friendships in multiple contexts could be linked to the maintenance of friendships after high school graduation.

There are three issues to be addressed in the future. The first is to investigate further the actual status of interactions with friends in informal settings among students with intellectual disabilities enrolled special needs high schools. It is necessary to investigate the degree of disability and educational environment of the youth with intellectual disabilities. Regarding the degree of disability, it is necessary to ascertain the degree of restriction of adaptive skills related to the use of public transportation, schooling history, and experiences of interaction with friends prior to entering high school. With regard to the environment, it is necessary to consider the area where the special needs school is located; the existence of extracurricular activities, such as club activities; and whether or not the student lives in a dormitory.

Another issue that needs to be examined is the relationship between the presence or absence of interactions with friends in informal settings and the presence or absence of aspirations for relationships with friends. The limited number of cases in this study indicates that the experiences of interacting with friends in informal settings may be involved in the development of aspirations for relationships with friends. It is necessary to verify whether this involvement is common among people with intellectual disabilities enrolled in special needs schools.

A third area for future research is the relationship between the development of friendships outside of school and the maintenance of these friendships after graduation. If these three issues can be clarified, it will be possible to consider a detailed curriculum for maintaining friendships after graduation in special needs high schools.

Acknowledgment

This work was supported by JSPS KAKENHI Grant-in-Aid for Early-Career Scientists Number JP 20K14069.

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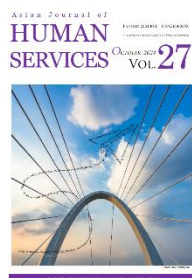
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Revised on March 31, 2023
Applied from AJHS Vol. 25 (October 2023)



Asian Journal of Human Services
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Asian Journal of Human Services

Journal homepage: <https://www.ashs-human.net/international-journal/ajhs/>

Online ISSN: 2188-059X / Print ISSN: 2186-3350

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This is to announce a correction regarding the author names and corresponding author's contact information for the article published in *Asian Journal of Human Services*, Vol. 27. We apologize for the error and provide the corrected information below.

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ASIAN JOURNAL OF HUMAN SERVICES

VOL.27 OCTOBER 2024

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Presidents | Masahiro KOHZUKI & Injae LEE

Publisher | Asian Society of Human Services
50-1, Shimotsukiyamacho, Murasakino, Kita-ku, Kyoto-city, Kyoto, 603-8222, Japan
E-mail: ashs201091@gmail.com

Production | Asian Society of Human Services Press
50-1, Shimotsukiyamacho, Murasakino, Kita-ku, Kyoto-city, Kyoto, 603-8222, Japan
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