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RESEARCH ARTICLE

Overexcitabilities (OEs) Among Students Who Are Gifted in Selangor, Malaysia: A Quantitative Study

Fung Lan Yong[1*], Christiana Jonut[2], Florence Chuah[3]
Loreta Ling Ling Uie[4], Ming Ha Lee[5]

[1]Postgraduate Studies, Jesselton University College, 88300 Kota Kinabalu, Sabah, Malaysia
Email: fungyong@jesselton.edu.my
[2]Diploma Studies, AMC University College, 88400 Kota Kinabalu, Sabah, Malaysia
Email: christiana_ft2022@amccollege.edu.my
[3]Inclusive GEMS Consultancy, 46200 Petaling Jaya, Selangor, Malaysia
Email: florencecsy@gmail.com
[4]Business Studies, Jesselton University College, 88300 Kota Kinabalu, Sabah, Malaysia
Email: loretaling8383@gmail.com
[5]Faculty of Engineering, Computing and Science, Swinburne University of Technology Sarawak Campus, 93350 Kuching, Sarawak, Malaysia
Email: mhlee@swinburne.edu.my

CORRESPONDING AUTHOR (*):
Fung Lan Yong
(fungyong@jesselton.edu.my)

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ABSTRACT

The purpose of this study was to examine the overexcitabilities (OEs) among students who are gifted in Malaysia using a quantitative approach. The Overexcitabilities Questionnaire-II (OEQ-II) was administered to 64 students identified as gifted, who were chosen through systematic random sampling. The Kruskal-Wallis H test revealed no significant differences in students' OEs by way of ethnicity and age, while Mann-Whitney U test showed no significant differences in terms of gender. The Wilcoxon Signed Rank Test revealed that 10 items were significant at $p < .001$, with medians significantly different from the test value of 3.5. Among these, nine items indicated strong agreement, while one item indicated strong disagreement. Additionally, eight items were significant at $p < .01$, with seven indicating strong agreement and one indicating strong disagreement. Lastly, seven items were significant at $p < .05$, with six showing strong agreement and one showing strong disagreement. In light of the findings, some recommendations were made on ways to capitalize on the OEs among the gifted.

Contribution/Originality: This research offers a valuable contribution by examining the overexcitabilities (OEs) of students who are gifted in Selangor, Malaysia. Findings will undoubtedly yield greater insight into the various dimensions of OEs among the gifted that enables educators, administrators, and policymakers to transform them into productive attitudes and behaviors that can further enhance the development of the intellectual, sensual, emotional, imaginational, and psychomotor attributes and propensities among the gifted.

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1. Introduction

According to Dabrowski's theory of advanced personal development, individuals who are gifted often establish their sense of self-identity over the course of their lives by displaying a variety of attributes known as overexcitabilities (OEs). OEs are characterized by an intense mind and body connection and a physical response to sensory input due to neuronal sensitivities. Moreover, Dabrowski identified five types of OEs among the gifted, including intellectual, sensual, emotional, imaginational, and psychomotor. First, individuals with intellectual OEs are constantly thinking, while demonstrating enthusiasm for detailed answers. Being passionate about knowledge, their incessant questioning often appears challenging to significant others. Second, individuals with sensual OEs tend to display heightened awareness of sight, smell, taste, touch, and hearing. Besides appreciating beauty in various forms, they may also enjoy music, color, movement, or tastes. Third, individuals with emotional OEs react intensely to stimuli; they feel deeply and are often moved to tears by music, art, or even a flower or autumn leaf falling to the ground. They appear to overreact to simple things or normal day-to-day experiences, while having strong attachments to people, objects, or things that they feel passionately about. Fourth, individuals with imaginational OEs tend to be daydreamers and dramatists who often experience strong emotions related to their intense thoughts, feelings, and experiences. Lastly, individuals with psychomotor OEs tend to have high energy levels and are constantly mobile. Besides being competitive with themselves and others, they often exhibit rapid speech and constantly ask questions. Additionally, they typically need less sleep than others and can concentrate deeply when mentally stimulated (Guy, 2024).

1.1. Benefits of Identifying OEs

Identification of OEs among the gifted are beneficial in three ways (Institute for Educational Advancement, 2015). First, with high intellectual and emotional OEs, the gifted tend to have a deep sense of empathy, compassion, and justice to support others, strive to resolve challenging problems, challenge significant others who seem unfair, and act as mediators and peacemakers, while taking social action. Moreover, since they have a deeper connection with the world, including people, animals, nature, places, and objects, they tend to be more receptive and responsive to what they feel and experience. Additionally, their capacity for deep thinking, internal debate and dialogue, and different viewpoints enable them to achieve individual development and gain greater self-awareness and self-acceptance. Lastly, ability to see issues from multiple perspectives also helps them find inventive and innovative solutions. Second, with high sensual OEs, the gifted tend to demonstrate great capability to take delight in what they see, taste, smell, touch, and hear, which enables them to derive joy from nature, art, food, fabric, music, and poetry. Further, their esthetic and intellectual creativity allows them to appreciate the beauty around them, which motivates them to become natural creators. Lastly, the gifted can capitalize on their OEs to relieve stress and tension; OEs often empower them to express their unique selves and embrace their gifts and talents with joy and self-assertiveness. While their intellectual OEs enable them to practice internal debates, dialogues, and arguments to vent emotions in private, their sensual OEs help them derive pleasure and happiness from everyday sensual experiences. While their imaginational OEs enable them to create fantasized scenarios that bring serenity and peace of mind, their psychomotor OEs help them expel negative energy through movement. In brief, OEs among the gifted should be acknowledged and regarded

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positively as a strength that helps them understand and appreciate the capacity to enthuse about various aspects of life.

1.2. Practical Utility of OEs

According to Emily (2015), knowledge of OEs offers practical utility for both parents and teachers in five ways. First, awareness of OEs can result in improved learning. While OEs can make it difficult for students in class, both teachers and students themselves can explore solutions; for example, while those with sensory OEs can sit at a quiet corner to avoid sensory distractions, those with psychomotor OEs can enjoy extra movement during the day. Second, knowledge of OEs helps prevent misdiagnosis; many OEs may appear similar to attention deficit hyperactive disorder (ADHD) or autism spectrum disorder (ASD); however, it is also possible for the gifted to be twice-exceptional (2e). Third, OE awareness helps improve student/teacher/parent relationships; handling OEs with empathy and compassion enables teachers and parents to employ appropriate behavior modification techniques specifically designed for different OEs, which in turn, encourage students to celebrate their OE as strengths and transform them into favorable attitudes and behaviors. Fourth, teachers and parents can apply their OE knowledge to enhance the mental health among the gifted by instilling a sense of wellbeing and belonging among them. Additionally, significant others who are understanding and accepting can help alleviate mood disorders among the gifted by presenting a better vignette to counselors or psychologists. Lastly, since OEs tend to occur more frequently among the gifted and may increase with the level of giftedness, they can be used as a means to identify giftedness besides using formal and informal assessments. Teachers and parents can also use OEs to make informal referrals for the gifted to receive individualized educational planning and other appropriate services.

1.3. Dominant OEs Among the Gifted

In their study, Piechowski and Colangelo (1984) revealed that the gifted tend to display strong intellectual, emotional, and imaginational OEs. On the other hand, Ackerman (1997) indicated that the most discernible OEs among the gifted are intellectual, emotional, and psychomotor OEs, while Bouchard (2004) reported that the gifted tend to have significantly higher intellectual OEs than the nongifted. Additionally, Bouchet and Falk (2001), who examined the relationship among giftedness, gender, and OEs among students enrolled in a gifted, advanced, or standard curriculum program, found that giftedness and OEs tend to be significantly related, with the gifted scoring significantly higher on intellectual and emotional OEs than students in the other two programs. Like previous researchers, Tieso (2007) reported that the gifted tend to have significantly higher intellectual and emotional OEs than the nongifted. Lastly, an investigation by Elballah (2020) into the relationships among cognitive emotional regulation strategies, OEs, and spiritual intelligence among the gifted revealed a significant and positive relationship between cognitive emotional regulation strategies, OEs, and spiritual intelligence. Moreover, findings also showed that OEs tend to be higher among males in the psychomotor and imaginary dimensions, while females tend to obtain higher scores in the sensual and emotional domains.

1.4. Significance of the Study

Kuan, Amat, and Mahmud (2021) postulated that quantitative research on OEs among the gifted is still scarce in Malaysia; hence, empirical studies examining the OEs among

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the gifted would generate useful information on meeting their cognitive, emotional, psychosocial, and physiological needs, while enhancing the relationships among students, teachers, and parents. Findings of the current study would enable educators, policymakers, and practitioners to gain greater awareness on the unique intellectual and psychological issues among the gifted in order to implement sound measures that could inspire them to develop their abilities and talents to the fullest potential, while assisting them to reach higher levels of self-acceptance, self-efficacy, and self-esteem. Lastly, current findings would encourage educational institutions to provide a validating and supportive environment that foster self-acceptance and self-awareness among the gifted by helping them identify and channel their OEs in ways that can promote a robust developmental trajectory. In brief, profiling OEs among the gifted enables educators and other professionals to appropriately nurture and help the gifted develop into dynamic, talented, self-actualized individuals.

1.5. Purpose of the Study and Research Questions

The purpose of this study was to examine the OEs among students who are gifted in Selangor, Malaysia. Three research questions were formulated to guide the study:

i. Were there any significant gender, age, and ethnic differences in the OEs among the gifted?
ii. Were there any significant differences in the OE items based on a hypothesized value of 3.5?
iii. What were the percentages of agreement (strongly agree/agree) on the OE items and implications?

2. Review of Literature

2.1. OE Differences in Relation to Cluster, Gender, and Perfectionism

Rinn et al. (2010) who explored the relationship between gifted adolescents' OEs and self-concepts, found the existence of four clusters, namely, low imaginational, high intellectual, low imaginational/high psychomotor group, and low psychomotor. The low psychomotor group tends to score significantly lower than other clusters with regard to opposite gender self-concept, same gender self-concept, physical ability self-concept, physical appearance self-concept, and emotional self-concept; this group also tends to score lower than the low imaginational/high psychomotor and high intellectual groups with regard to math self-concept and general self-concept, with females significantly outnumbering males in the low psychomotor group.

On the other hand, Mofield and Peters (2015), who explored the relationships between OEs and dimensions of healthy and unhealthy perfectionism among the gifted, found a significant relationship between emotional OEs and perfectionism. Additionally, high emotional, high intellectual OEs, and low imaginational OEs tend to significantly predict healthy perfectionism. Findings imply that OEs is significantly related to perfectionism; they tend to propel the gifted to achieve better performance, while overcoming such negative dynamisms as shame, guilt, and self-doubt associated with perfectionism. Additionally, Razak et al. (2021), who studied the relationship between OEs and perfectionism among the gifted, found that that they tend to possess a unique personality, with their high level of perfectionism being significantly related to their OEs. In other words, there is a strong, positive linear relationship between perfectionism

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and OEs among the gifted. Lastly, the gifted also tend to obtain the highest mean score in intellectual OEs, followed by emotional, sensory, imaginational, and psychomotor OEs.

2.2. Perceptions of Parents, Teachers, and Peers

A study by Al-Hroub and Krayem (2018) that examined teachers' perceptions of ADHD and OEs among the gifted revealed that the gifted tend to be mostly identified by teachers based on a combination of cognitive and socioemotional qualities. Findings imply that school administrators should implement seminars, workshops, or professional development programs to ensure that teachers are cognizant of the behaviors or attributes associated with OEs among the gifted; for instance, awareness of the differences between OEs and ADHD will enable them to treat students with OEs or ADHD with greater tolerance, patience, and understanding, while avoiding misdiagnosis, misidentification, or mislabeling.

Additionally, Al-Hroub and Krayem (2018) found that parents tend to perceive the gifted as possessing different OEs due to various psychosocial factors. First, many of the gifted experience fear and anxiety due to the gap between cognitive and emotional development; those who possess intellectual and imaginational OEs tend to have more frequent or prolonged experiences of insomnia and fear of the unknown. Second, the gifted often have qualitatively different experiences of the world compared to their nongifted peers. Therefore, befriending regular children is often difficult for the gifted because of the socioemotional issues arising from their asynchronous development. Moreover, the gifted tend to experience cognitive adolescence much earlier than their same-aged peers, which makes them feel out of sync among their average peers. Third, while the intensity of OEs can be the driver behind their ability to demonstrate outstanding performance, parents and teachers may lack awareness on their inner world, which in turn, prevents them from meeting their exceptional needs.

2.2. Differences in OEs Between the Gifted and Nongifted

With regards to OEs, research shows that significant differences exist between the gifted and nongifted. Rinn et al. (2010) asserted that the gifted tend to score higher than the nongifted on certain types of OEs; moreover, higher imaginational, intellectual, and emotional OEs are more likely to enhance their cognitive, affective, and psychomotor development. On the other hand, Wirthwein and Rost (2011), who compared the OEs between the intellectually gifted and average adults, found that the academically gifted tend to score significantly higher on intellectual and sensual OEs.

Additionally, Limont et al. (2014), who examined the relationship between types of OEs, Big Five dimensions, and giftedness, discovered that the gifted tend to obtain higher scores than the nongifted on intellectual and imaginational OEs, as well as, openness to experience, with giftedness moderating the relationship between OEs and openness and extraversion. Further, the relationships between sensual OEs and openness, as well as, between psychomotor OEs and extraversion tend to be stronger among the gifted. Lastly, findings imply that the gifted may possess undiscovered artistic or creative ability since openness is often a strong predictor of creative achievement in the arts.

Abdelrheem (2021), who examined the relationship between brain dominance and OEs among the academically gifted, concluded that an interaction between brain dominance and major in relation to emotional and imaginative OEs, while cognitive and imaginative

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OEs tend to indirectly explain brain dominance and OEs. Findings imply that brain dominance and OEs are related to each other; therefore, they can be used to distinguish the high mental process between the gifted and nongifted. Further, Pethö (2022), who examined the OEs among the intellectually gifted and regular students, discovered significant differences within individual type of OEs (intellectual, sensual, emotional, imaginational, psychomotor) between the intellectually gifted and regular students. Findings indicated that intellectual and emotional OEs tend to significantly contribute to academic giftedness, with intellectual OEs acting as the most powerful predictor of academic achievement.

Lastly, Al-Gablan, Al-Jarrah, and Al-Abbasi (2023) investigated the impact of OEs on the creative personalities between the gifted and regular students. Findings revealed that significant effects of students' classification on creativity tend to exist in favor of the gifted; students' classification also tends to have a significant effect on their OEs in favor of the gifted. While mental OEs tend to significantly contribute to the creativity among the gifted, sensory OEs tend to augment the creativity among regular students. Nevertheless, sensory OEs still tend to contribute significantly more among the gifted compared to regular students in terms of creativity.

2.3. Relationships Between OEs and Other Variables

Some researchers have examined the relationships between OEs and other factors. A study by Fung, Chung, and He (2021) examined the direct and indirect relationships among imaginational OEs, cognitive play processes, affective play processes, and parent-reported creative potential among kindergarteners. Findings showed that parent-reported creative potential tends to be significantly related to their children's cognitive play processes, but only marginally related to their affective play processes. Furthermore, the relationship between imaginational OEs and parent-reported creative potential tends to be fully mediated by children's cognitive and affective play processes. Findings imply that children's cognitive and affective play processes may explain the relationship between their imaginational OEs and parent-reported creative potential, thus highlighting the importance of providing them with opportunities and resources to practice imaginative play to enhance their innovative potential.

Gallagher (2021), who investigated into the relationships between Big Five factors and OEs among the gifted, found that students with three or more OEs tend to have significantly higher levels of openness to experience than those with fewer OEs. Moreover, gifted females tend to have significantly higher levels of neuroticism than their male counterparts. Findings imply the importance of understanding the academic and socioemotional needs of the gifted, while justifying the use of a personality/OE model to gain greater insight into the relationships among intelligence, personality, and giftedness. On the other hand, Sousa and Fleith (2021) examined the OEs among the academically gifted (Group 1), artistically gifted (Group 2), and nongifted students. Findings revealed significant differences in the patterns of intellectual, imaginative, and psychomotor OEs among the three groups. Group 1 tends to obtain higher means than the other groups in terms of intellectual OEs, while Groups 1 and 2 tend to have higher means than Group 3 with regards to imaginative OEs. Lastly, in terms of psychomotor OEs, Group 1 tends to get higher means than Group 2.

On the other hand, Adi and A'ron (2023) explored the role of the "goodness of fit" (GoF) or match/mismatch of parental estimations between the actual and desired levels of

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their precocious children's OEs (OEs-GoF) in relation to their self-esteem, hope, and wellbeing. Findings showed that parents tend to describe the precocious as having higher levels of intellectual, sensual, emotional, and general OEs than their regular peers. Findings also indicated that (1) general OEs-GoF tends to be negatively correlated with children's self-esteem, hope, and wellbeing, (2) sensory and emotional OEs tend to be significantly and negatively related to all coping resources, and (3) psychomotor and intellectual OEs-GoF tend to be significantly and negatively related only to self-esteem. Additionally, the indirect effects of GoF on the relationships between actual OEs and coping resources tend to be significantly related to general, sensual, emotional, and psychomotor OEs. Lastly, findings imply that the mismatch between parents' perceptions of their children's actual and desired levels of OEs is stronger in cases of children with sensory, emotional, and psychomotor OEs; therefore, these types may experience more conflicts with the environment.

An investigation was conducted by Wood et al. (2024) to determine the prevalence of the OEs among the highly or profoundly gifted. Findings provided an estimate of the prevalence and distinct types of OEs among the highly-profoundly gifted, with a majority of the highly-profoundly gifted tending to express combinations of three or more higher-level OEs, including intellectual, emotional, and imaginational. Further, findings imply that OEs and giftedness can be used to identify students who exhibit behaviors and developmental milestones similar to those of the highly-profoundly gifted to reduce historical misunderstanding, misdiagnosis, and misidentification among the gifted. Lastly, Alker (2024) hypothesized that the gifted tend to (1) exhibit stronger OEs than the average-intelligent and (2) experience mental health deterioration more often than their regular peers. Findings substantiated that the highly gifted tend to experience difficulties in effectively dealing with OEs or adequately channeling them, which may lead to varying levels of mental health issues and illness, thus implying that it is crucial for educators and parents to help the gifted to effectively direct their OEs toward creativity and intellectual achievement.

3. Methodology

3.1. Research Design and Approach

The study employed a quantitative approach because it is useful to describe and summarize numerical data in an objective and systematic manner by using SPSS 29.0. It allowed the researchers to access an appropriate sample with reasonable representation of the gifted population in Selangor, thus making generalization of findings possible. Additionally, this approach was also appropriate since the study attempted to find significant differences and percentages in quantitative data, derive implications and conclusions based on empirical findings, and suggest recommendations for educators and policymakers to capitalize on the OEs of the gifted to help them fulfill their intellectual, sensual, emotional, imaginative, and psychomotor needs, which in turn, can boost their academic, socioemotional, artistic, and physiological development.

3.2. Research Location

The study was conducted in the state of Selangor in Malaysia, where a formal gifted program is available. In general, research on the gifted is lacking in Malaysia because there are only four gifted programs in the country, and none in the two Bornean states of Sabah and Sarawak. Students identified as gifted in one location (Selangor) were

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randomly chosen as respondents since the study was limited to examining the OEs of a particular segment; hence, the sample was deemed sufficiently representative of the gifted population in the state. Besides, data collection was much more feasible at the chosen location because the first author knows, and has co-published with, the data collector. The study also received little funding; therefore, the survey was delimited to one location to save cost and time. Overall, the research was greatly constrained by time, accessibility, and financial support.

3.3. Sample

The sample (n = 64) was recruited through systematic random sampling, whereby students were selected for inclusion because they were the easiest to access. In brief, systematic random sampling was practiced because of geographical proximity, availability and accessibility of the sample at the given time, and willingness of data collector to participate in the research. First, a list of students identified as gifted in the Selangor area was provided by the third author, who is the cofounder of the Inclusive GEMS Consultancy that provides mentoring to students with special or twice exceptional (2e) needs, including the gifted. Subsequently, every second student on the list was contacted via email or WhatsApp; ultimately, 64 of them were willing to respond to the questionnaire on Google Forms.

3.4. Justification for Sample Size

The sample size of this study was limited to 64. Nevertheless, according to Roscoe (1975), a sample size greater than 30 and less than 500 is suitable for most survey studies; the argument behind this rule of thumb is derived from the central limit theorem (CLT), which states that the distribution of means will reach a normal distribution as the sample size increases. This rule of thumb was applied by RUBIKTOP (2023), a prominent market research company committed to delivering high-quality, actionable data. First, the CLT provides a good approximation of the sampling distribution of the mean for the current sample size of 64, which indicates that the normal distribution can be used to calculate confidence intervals and p-values for the findings. Second, for most statistical tests in education, the probability of rejecting the null hypothesis when it is true (Type I error) is controlled at a significant level of 0.05; therefore, the current researchers are willing to accept a five (5) percent chance of making a Type I error (rejecting the null hypothesis when it is actually true). With the current sample size, this level of control for most statistical tests can be achieved. Third, the power of a statistical test also lies in its probability of rejecting the null hypothesis when it is false (Type II error). Since power can be reasonably derived from a minimal sample size of 30, the present sample will yield relatively high power. Lastly, a minimal sample size of 30 can help achieve a reasonable level of power for non-parametric tests; therefore, the current sample would be sufficient to indicate significant differences for the Kruskal-Wallis H, Mann-Whitney U, and Wilcoxon signed rank tests that were utilized to analyze data in this study.

Lastly, students come from diverse communities with a middle-class socioeconomic background and demonstrate fluency in both English and the Malay Language, besides their own dialect. They were identified through a variety of formal and informal measures, mainly based on academic achievement, special portfolios, interviews, and teacher appraisal/recommendation. Male comprised 56.3 percent, while female comprised 43.8 percent of the sample. Age wise, 40.6 percent are less than age 12, 14.1

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percent are of age 12 to 17, and 45.3 percent are of age over 17. Lastly, 50 percent are Chinese,28.1 percent are Malays, 9.38 percents are Indians, and 12.5 percent are Eurasians (see Table 1).

Table 1: Demographic Characteristics of the Sample (n = 64)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	36	56.25
	Female	28	43.75
Age	Less than 12	26	40.63
	12-17	9	14.06
	More than 17	29	45.31
Ethnicity	Chinese	32	50.00
	Malay	18	28.13
	Indian	6	9.38
	Eurasian	8	12.50

3.5. Instrument

The Overexcitabilities Questionnaire-II (OEQ-II) was administered to collect data. It is designed to measure the five forms of overexcitabilities: Intellectual, sensual, emotional, imaginational, and psychomotor (Falk et al., 1999). It includes 50 self-report items using a five-point Likert-type scale with responses ranging from 1 (not at all like me) to 5 (very much like me). Each OE subscale is made up of 10 items, with high scores indicating higher levels of OEs. From the normative sample, its Cronbach's alpha was high for each dimension: .89 for intellectual and sensual, .84 for emotional, .85 for imaginational, and 86 for psychomotor (Rinn et al., 2010).

Wirthwein and Rost (2011) used the OEQ-II to compare intellectually gifted adults, adults of average intelligence, and high achievers. Findings showed that gifted adults tend to score statistically significantly higher on intellectual OEs, while high and average achievers tend to differ significantly in intellectual and sensual OEs. For the gifted sample, the accuracy of group membership prediction (gifted/non-gifted) via discriminant analyses was 60.4 percent, while the accuracy for the performance sample was 63.4 percent. Additionally, the intercorrelations of the five scales ranged from r = .51 (emotional/imaginational and emotional/sensual) to r = .05 (imaginational/psychomotor) in the gifted sample, and from r = .05 (sensual/psychomotor) to r = .46 (imaginational/emotional) in the performance sample. Lastly, the resulting psychometric properties (standard deviations, means, Cronbach's alpha) of the OE scales reflect high internal consistencies.

To determine its reliability for the current study, a pilot study was carried out on 20 students identified as gifted using the OEQ-II and data were analyzed using SPSS. Results revealed that its Cronbach alpha was 0.93, thus reflecting its high internal consistency and suitability for the study.

3.3. Data Collection and Analysis

To obtain relevant data, the first author contacted the third author to recruit a sample of students identified as gifted to complete the questionnaire on Google Forms. Respondents were told that all procedures involving human participants were carried out in compliance with all the ethical guidelines for survey research and that they would

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remain anonymous with their responses kept strictly confidential. They were also informed that their participation was strictly voluntary and that they could stop any time without any repercussion. Subsequently, data were automatically transferred onto a spreadsheet and analyzed using SPSS. First, Kruskal-Wallis H Test was conducted to determine if there were any significant differences in students' OEs in relation to ethnicity and age, while Mann-Whitney U Test was used to test if there were any significant differences in terms of gender. Next, Wilcoxon signed rank was used to decide if significant differences (agreement/disagreement) existed in the items based on the hypothesized value of 3.5. Lastly, descriptive statistics were used to present the percentages of agreement on each item to gain an overview of students' OEs.

4. Findings

4.1. Non-parametric Tests

The Kruskal-Wallis H test revealed no significant differences in students' OEs by way of ethnicity and age, while Mann-Whitney U est showed no significant differences in terms of gender (see Table 2).

Table 2: Non-parametric Test Results

Variables	Non-parametric test	*p*-value
Gender	Mann-Whitney U test	0.420
Age	Kruskal-Wallis test	0.650
Ethnicity	Kruskal-Wallis test	0.266

4.2. Wilcoxon Signed Rank Test

The Wilcoxon signed rank test revealed that 10 items were significant at $p < .001$, with medians significantly different from the test value of 3.5. Among these, nine items indicated strong agreement, while one item indicated strong disagreement. Additionally, eight items were significant at $p < .01$, with seven indicating strong agreement and one indicating strong disagreement. Lastly, seven items were significant at $p < .05$, with six showing strong agreement and one showing strong disagreement (see Table 3).

Table 3: Wilcoxon Signed Rank Test (Hypothesized Value = 3.5)

Item	*p*-value	Standardized Test Statistic	Conclusion
I am an independent thinker	< 0.001***	4.822	Median significantly differed from the test value, indicating strong agreement
I can take difficult concepts and translate them into something more understandable	< 0.001***	3.909	Median significantly differed from the test value, indicating strong agreement
I question everything - how things work, what they mean, why things are the way they are	< 0.001***	4.569	Median significantly differed from the test value, indicating strong agreement

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I can form a new concept by putting together a number of different things	0.001**	3.182	Median significantly differed from the test value, indicating strong agreement
I observe and analyze everything	< 0.001***	4.289	Median significantly differed from the test value, indicating strong agreement
Theories get my mind going	< 0.001***	4.952	Median significantly differed from the test value, indicating strong agreement
I love to solve problems and develop new concepts	0.001**	3.386	Median significantly differed from 3.5, indicating strong agreement
I like to dig beneath the surface of issues	< 0.001***	3.726	Median significantly differed from 3.5, indicating strong agreement
I try to analyze my thoughts and actions	0.001**	3.234	Median significantly differed from the test value, indicating strong agreement
I like to play with ideas and try to think about how to put them to use	< 0.001***	4.402	Median significantly differed from the test value, indicating strong agreement
I am a competitive person	0.024*	2.262	Median significantly differed from the test value, indicating strong agreement
If an activity is physically exhausting, I find it satisfying	0.007**	-2.705	Median significantly differed from the test value, indicating strong disagreement
I love to be in motion	0.013*	2.487	Median significantly differed from the test value, indicating strong agreement
When I have a lot of energy, I want to do something physical	0.009**	2.626	Median significantly differs from the test value, indicating strong agreement
I am more energetic than most people my age	0.962	-0.048	No significant difference from the test value
The longer that I have to sit still, the more restless that I get	0.031*	2.155	Median significantly differs from the test value, indicating strong agreement
I feel like my body is constantly in motion	0.699	0.386	No significant difference from the test value
When I am nervous, I need to do something physical	0.488	-0.694	No significant difference from the test value
I thrive on intense physical activity, e.g. fast games and sports	0.098	-1.653	No significant difference from the test value
The varieties of sound and color are delightful	0.001**	3.181	Median significantly differs from the test value, indicating strong agreement
Viewing art is a totally absorbing experience	0.049*	1.965	Median significantly differs from the test value, indicating strong agreement
I get great joy from the artwork of others	0.646	0.459	No significant difference from the test value
I feel music throughout my whole body	0.023*	2.268	Median significantly differs from the test value, indicating strong agreement

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I delight in colors, shapes, and textures of things more than other people do	0.989	-0.014	No significant difference from the test value
I am moved by beauty in nature	< 0.001***	4.749	Median significantly differs from the test value, indicating strong agreement
I am more sensitive to the color, shape, and texture of things than some people	0.716	0.364	No significant difference from the test value
I enjoy the sensations of colors, shapes, and designs	0.003**	2.955	Median significantly differs from the test value, indicating strong agreement
The difference in aromas is interesting	0.078	1.765	No significant difference from the test value
I love to listen to the sounds of nature	0.013*	2.483	Median significantly differs from the test value, indicating strong agreement
I like to daydream	0.002**	3.132	Median significantly differs from the test value, indicating strong agreement
My pretend world is very real to me	0.239	-1.178	No significant difference from the test value
When I get bored, I begin to daydream	0.179	1.343	No significant difference from the test value
Sometimes I pretend I am someone else	0.032*	-2.145	Median significantly differs from the test value, indicating strong disagreement
Things that I picture in my mind are so vivid that they seem real to me	0.706	-0.377	No significant difference from the test value
I find myself mixing truth and fantasy in my thoughts	0.203	-1.273	No significant difference from the test value
I enjoy exaggerating reality	0.432	-0.787	No significant difference from the test value
I believe that dolls, stuffed animals, or the characters in books are alive and have feelings	< 0.001***	-3.607	Median significantly differs from the test value, indicating strong disagreement
Words and sounds create unusual images in my mind	0.070	-1.813	No significant difference from the test value
I have a talent for fantasy.	0.454	-0.749	No significant difference from the test value
I worry a lot.	0.418	0.810	No significant difference from the test value
It makes me sad to see a lonely person in a group.	0.096	1.664	No significant difference from the test value
I can be so happy that I want to laugh and cry at the same time	0.216	-1.237	No significant difference from the test value
I have strong feelings of joy, anger, excitement, and despair	< 0.001***	3.822	Median significantly differs from the test value, indicating strong agreement
I am deeply concerned about others	0.001**	3.355	Median significantly differs from the test value, indicating strong agreement
My strong emotions move	0.792	0.263	No significant difference from

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me to tears			the test value
I can feel a mixture of different emotions all at once	< 0.001***	4.394	Median significantly differs from the test value, indicating strong agreement
I am an emotional person	0.118	1.563	No significant difference from the test value
I take everything to heart	0.387	0.865	No significant difference from the test value

Note: ***$p < .001$; **$p < .01$; *$p < .05$

4.3. Percentages

Percentages of "a lot like me "and "very much like me" were collapsed for each item to get a general impression on the OEs of the gifted in Selangor, Malaysia. The item that reflected the highest percentage was reported for each dimension. For intellectual OE, a high of 82.8 percent of the gifted indicated that it was a lot like them/very much like them to question everything, especially with regards to how things work, what they mean, and why things are the way they are. For sensual OEs, a high of 84.4 percent indicated that it was a lot like them/very much like them to be moved by beauty in nature. For emotional OEs, 78.1 percent indicated that it was a lot like them/very much like them to feel a mixture of different emotions all at once. For imaginational OEs, only 60.5 percent indicated that it was a lot like them/very much like them to perceive their pretend world as very real. Lastly, for psychomotor OEs, merely 56.26 percent indicated that it was a lot like them/very much like them to become more restless the longer that they have to sit still. Overall, the gifted in this study tend to be mostly characterized by intellectual and sensual OEs, but least characterized by psychomotor OEs (see Table 4).

Table 4: Percentages of Agreement on OE Items

Item	**Scale (percentage)**					
	1	**2**	**3**	**4**	**5**	**4 + 5**
Intellectual OEs						
I am an independent thinker	1.56	0.00	21.88	39.06	37.50	76.56
I can take difficult concepts and translate them into something more understandable	0.00	7.81	18.75	37.50	35.94	73.44
I question everything - how things work, what they mean, why things are the way they are	3.13	6.25	7.81	34.38	48.44	82.82
I can form a new concept by putting together a number of different things	1.56	6.25	25.00	34.38	32.81	67.19
I observe and analyze everything	3.13	7.81	9.38	28.13	51.56	79.69
Theories get my mind going	0.00	6.25	14.06	31.25	48.44	79.69
I love to solve problems and develop new concepts	0.00	10.94	21.88	25.00	42.19	67.19
I like to dig beneath the surface of issues	3.13	3.13	21.88	37.50	34.38	71.88
I try to analyze my thoughts and actions	1.56	12.50	14.06	31.25	40.63	71.88
I like to play with ideas and try to think about how to put them to use	1.56	7.81	10.94	34.38	45.31	79.69
I am a competitive person	6.25	9.38	17.19	32.81	34.38	67.19
Psychomotor OEs						

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If an activity is physically exhausting, I find it satisfying	9.38	28.13	25.00	23.44	14.06	37.50
I love to be in motion	4.69	6.25	26.56	26.56	35.94	62.50
When I have a lot of energy, I want to do something physical.	4.69	4.69	28.13	26.56	35.94	62.50
I am more energetic than most people my age.	9.38	9.38	34.38	20.31	26.56	46.87
The longer that I have to sit still, the more restless that I get.	0.00	10.94	32.81	21.88	34.38	56.26
I feel like my body is constantly in motion.	4.69	12.50	32.81	25.00	25.00	50.00
When I am nervous, I need to do something physical.	4.69	25.00	20.31	28.13	21.88	50.01
I thrive on intense physical activity, e.g. fast games and sports.	12.50	20.31	23.44	23.44	20.31	43.75
Sensual OEs						
The varieties of sound and color are delightful.	1.56	7.81	25.00	26.56	39.06	65.62
Viewing art is a totally absorbing experience.	3.13	12.50	23.44	26.56	34.38	60.94
I get great joy from the artwork of others.	3.13	15.63	29.69	26.56	25.00	51.56
I feel music throughout my whole body.	6.25	9.38	15.63	37.50	31.25	68.75
I delight in colors, shapes, and textures of things more than other people do.	6.25	14.06	31.25	23.44	25.00	48.44
I am moved by beauty in nature.	0.00	9.38	6.25	42.19	42.19	84.38
I am more sensitive to the color, shape, and texture of things than some people.	4.69	18.75	23.44	25.00	28.13	53.13
I enjoy the sensations of colors, shapes, and designs.	0.00	10.94	21.88	34.38	32.81	67.19
The difference in aromas is interesting.	6.25	10.94	18.75	32.81	31.25	64.06
I love to listen to the sounds of nature.	3.13	15.63	12.50	28.13	40.63	68.76
Imagination OEs						
I like to daydream.	1.56	6.25	28.13	26.56	37.50	60.46
My pretend world is very real to me.	10.94	15.63	26.56	29.69	17.19	46.88
When I get bored, I begin to daydream.	9.38	7.81	23.44	26.56	32.81	59.37
Sometimes I pretend I am someone else.	12.50	23.44	23.44	21.88	18.75	40.63
Things that I picture in my mind are so vivid that they seem real to me.	9.38	18.75	23.44	18.75	29.69	48.44
I find myself mixing truth and fantasy in my thoughts.	10.94	12.50	34.38	23.44	18.75	42.19
I enjoy exaggerating reality.	14.06	15.63	15.63	35.94	18.75	54.69
I believe that dolls, stuffed animals, or the characters in books are alive and have feelings.	35.94	7.81	23.44	14.06	18.75	32.81
Words and sounds create unusual images in my mind.	9.38	20.31	28.13	26.56	15.63	42.19
I have a talent for fantasy.	10.94	20.31	14.06	34.38	20.31	54.69
Emotional OEs						

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I worry a lot.	6.25	15.63	21.88	25.00	31.25	56.25
It makes me sad to see a lonely person in a group.	9.38	12.50	9.38	32.81	35.94	68.75
I can be so happy that I want to laugh and cry at the same time.	25.00	9.38	9.38	34.38	21.88	56.26
I have strong feelings of joy, anger, excitement, and despair.	1.56	10.94	12.50	28.13	46.88	75.01
I am deeply concerned about others.	0.00	10.94	15.63	43.75	29.69	73.44
My strong emotions move me to tears.	12.50	15.63	14.06	23.44	34.38	57.82
I can feel a mixture of different emotions all at once.	1.56	7.81	12.50	29.69	48.44	78.13
I am an emotional person.	14.06	6.25	7.81	46.88	25.00	71.88
I take everything to heart.	9.38	10.94	18.75	35.94	25.00	60.94

Note: 1 = Not like me at all, 2 = Not much like me, 3 = Somewhat like me, 4 = Mostly like me, 5 = Very much like me

5. Discussion, Implications, and Recommendations

5.1. Discussion

This study revealed that gifted in Selangor, Malaysia tend to be characterized primarily by intellectual and sensual OEs, which was supported by previous research. Piechowski and Colangelo (1984) found that the gifted tend to display strong intellectual, emotional, and imaginational OEs, Ackerman (1997) revealed that the most discernible OEs among the gifted are intellectual, emotional, and psychomotor. Overall, previous research showed that the gifted tend to score significantly higher on intellectual, sensual, and emotional OEs than other groups of students (Bouchet & Falk, 2001; Tieso, 2007).

With reference to the current findings, teachers can effectively interact with students with different OEs in various ways (Sampson, 2013). First, students with intellectual OEs tend to be passionate problem solver, keen observers, avid readers with high concentration ability and enthusiasm for novel information. While demonstrating outstanding intellectual achievement, they may nevertheless experience fear of failure, anxiety, avoidance, inadequacy, and ultimately, incomplete work. Therefore, teachers can provide (a) extra time for them to accomplish tasks, (b) digital storage that allows further work to be postponed, (c) discussions around errors, (d) activities that promote peer interaction, and (e) extracurricular activities, such as field trips and sports to promote interpersonal and creative motor skills.

Second, students with sensual OEs often experience intense seeing, hearing, smelling, touching, and tasting that may cause negative reactions from others. For example, some may cover their ears, while others are enjoying a play; some find certain food texture or taste unbearable, yet others find bright light glaringly painful. Still others dislike the feel of wool or elastics. Therefore, teachers need check the things that students like and dislike to create an esthetically pleasing environment for all senses that is soothing and welcoming, such as quiet spaces and cushioned corners to prevent sensual overloading (Sampson, 2013).

Third, students with imaginational OEs often have a fertile imagination and the ability to immerse themselves in imaginary adventures with friends, pets, and animals to amuse themselves autonomously. Besides support, teachers can provide opportunities for them

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to create a portfolio of stories, anecdotes, and imaginary play that promotes problem solving (Sampson, 2013).

Fourth, students with emotional OEs often display intense emotions toward specific persons, objects, rituals, traditions, and settings, which can lead to feelings of loss, rejection, and despair. Therefore, teachers need to create an inclusive environment that offers acknowledgement, support, and comfort. They should also act as active listeners to encourage students to develop socially and culturally acceptable ways in expressing and coping with their strong emotions and feelings (Sampson, 2013).

Lastly, students with high psychomotor OEs tend to be busy and restless and move their limbs while thinking. Teachers can let them hold a small a bean bag or soft toy to help them concentrate. They should also provide some mobility opportunities following such sedentary activities as reading, listening, and writing (Sampson, 2013).

5.2. Implications

Current findings reflect the importance of adopting a whole-child approach to parenting, educating, and individualizing programming for the gifted. Recognizing OEs is vital for the proper identification and appropriate curricular planning for the gifted. First, the gifted with high intellectual OEs need a curriculum that provides enough stimulation that will result in greater engagement, more positive teacher appraisal, or on-task behaviors. Teachers need to support them by providing them with tools to access the information they favor, including books, magazines, newspapers, podcasts, and audiobooks, which offer vast sources of knowledge. Additionally, they should provide academic experiences that match their mental-age level, for instance, by planning curricular extensions that allow them to delve deeper into the lesson. Instead of simply adding more assignments, which can appear redundant, teachers should assign different types of activities, such as, after-school options for educational enrichment, raising money for charities, gardening for, or packing care packages for the survivors of natural disasters (Kawa, 2022).

Second, the gifted with high sensual OEs need to, quite literally, stop and smell the roses; therefore, teachers need to understand their unusual sensory profile (i.e., hypersensitive versus hyposensitive), and subsequently, construct a learning environment that scaffolds those sensory needs. Further, teachers need to act as a sensory detective by investigating what is happening to the gifted and what they require for problem-solving. For example, they can conduct a sensory tour of the school by considering its lighting, sounds, color, patterns, textures, surfaces, shadows, and reflections, while observing how they feel most relaxed, secure, and safe. Additionally, they can adopt activities that can up-regulate or down-regulate students, while ensuring that the sensory activities are interesting and engaging. Besides recognizing students' individual sensory needs and identifying their required sensory input, teachers should provide predictable structures and routines to support their psychological wellbeing, while staying serene, patient, and supportive themselves (Cumbria County Council, n. d.).

Third, to support the emotional OEs among the gifted, teachers need to acknowledge their feelings and thoughts as real rather than attention-seeking tactics. They should try to honor, respect, and validate their emotions, no matter how enigmatic the response seems. Further, they should help them identify the initial emotional reaction to apply a coping strategy to maintain a sense of control. They should also instill a sense of self-

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awareness in the gifted to help them tap into their sensitivity and reactivity, or instance, they can encourage them to adopt such techniques as taking 4-7-8 breaths, splashing cold water on their faces, or doing yoga or calisthenics, or practicing meditation (Kawa, 2022).

Fourth, the gifted with imaginational OEs tend to blur the boundaries between fantasy and reality. Therefore, teachers need to provide support to help them separate facts from fantasies in a nonjudgmental and non-shaming manner. They can also provide productive outlets that allow their minds to roam free, such as, producing screenplays, vlogs, or stories, participating in a robotics team, engaging with art materials, or incorporating pretend playtime into the daily schedule (Kawa, 2022).

Finally, to help the gifted channel their psychomotor OEs in a productive way, teachers should provide a schedule that allows for extra activity, movement, and action throughout the day. While organized sports are an avenue, teachers can integrate physical education and mobility into the school routine to satisfy students' psychomotor OEs. Lastly, they can also (1) provide alternative seating options or standing desks and (2) assign such chores as cleaning the blackboard and watering the plants, and (4) introduce a coping tool for stress reduction (Kawa, 2022).

5.3. Recommendations

According to Lind (2011), generally, there are four strategies to work and live with individuals with OEs. Teachers can discuss the concept of OEs by focusing on the positive aspects, cherishing and celebrating diversity, and cultivating effective communication skills. First, they should share the descriptions of OEs with the family, class, or counseling group, while assuring the gifted that it is understandable and acceptable to have OEs. Second, they should jointly discuss the positive aspects of OEs when first introducing the concept, and continue to emphasize the merits of being metacognitive, esthetic, empathetic, or poetic. Third, while promoting educational and societal equity, schools should celebrate diversity and individual differences. The gifted should be made aware that OEs are just one more description of who they are and cannot be obliviated; therefore, they should regard their passions and the innate essence as valuable and worthy of respect. Acknowledging their OEs also promotes validation and self-acceptance among the gifted, which gives them a sense of belonging and positive self-esteem. Fourth, individuals with OEs need to demonstrate socially appropriate and culturally acceptable verbal and nonverbal communication skills. While they often experience the world with greater intensity, they still need to effectively manage and share their intensity and differentness to thrive. Therefore, they need to acquire effective communication skills to help improve the chances of getting what they desire and treating others with caring and respect, besides nurturing and facilitating their personal growth with greater self-acceptance and smoother functioning at home, school, workplace, or in public.

Lind (2011) added that individuals with OEs should learn stress management, create a comforting environment whenever possible, and be aware of their own behaviors and impact. Since OEs can increase the stress reactions among the gifted due to their increased reception of, and reaction to, the external environment, they need to (1) learn to identify their stress symptoms, (2) develop strategies for stress reduction, and (3) adopt strategies to prevent and eliminate stress. Additionally, they also need to create an environment that is conducive for learning, retreat, or safety. Although refining their

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environment to meet their individual needs requires experimentation and external help, it will result in a greater sense of wellbeing and productivity among the gifted. Lastly, individuals with OEs need to gain deeper awareness of their own attitudes and behaviors, as well as, their impact on others. Besides, they should learn to become more sensitive rather than just assuming that everyone will understand why they interrupt to share an important idea, or tune people out when creating a narrative in their mind. It is vital for them to assume responsibility for their own attitudes and behaviors, as well as, to be cognizant that other people's needs are just as important as theirs. In brief, they need to be conscious of how they are perceived by others, and subsequently, adopt strategies to accommodate and assimilate.

Additionally, Guy (2024) recommended some strategies to help the gifted capitalize on their intellectual, sensual, and emotional OEs. First, teachers can support the intellectually gifted by focusing on their interests and curiosities, besides planning such mentally stimulating activities as chess, puzzles, and cognitive games. They can also create opportunities for them to interact with peers who are intellectual equals. Second, teachers can encourage the sensually gifted to use headphones or sunglasses or make accommodations when attending events that are overstimulating. Further, they can provide opportunities for them to delight in pleasurable sensory experiences, such as listening to music, arranging fresh flowers, taking a stroll on campus, or watching the sunset. Third, to help the gifted cope with their emotional OEs, teachers need to model the transience of emotions by emphasizing that they are only temporary feelings and thoughts. Moreover, teachers also need to demonstrate ways to anticipate emotional situations and encourage students to rehearse, such as, how to appropriately respond if they lose a game, obtain a low grade, or are unable to achieve something that they have planned. Lastly, they can also teach and model emotion regulation to students, such as taking deep belly breathing, chanting mantas, and practicing positive self-talk.

Guy (2024) added that teachers can fulfil the imaginational and psychomotor OEs among the gifted through various activities. First, they can encourage the imaginatively gifted to express their fantasies through puppetry, making plays/movies, or producing art. Further, they can train them to differentiate between reality and fantasy and form different perspectives of events, while validating their own personal perspectives. Besides providing support, teachers should also encourage them to use their imagination to solve real-life problems and cope with real-world struggles in an autonomous manner. On the other hand, to satisfy students' psychomotor OEs, teachers can encourage them to engage in physical activities, such as sports, rough and tumble play, hill-climbing, hiking, or biking. Further, they can involve them in various tasks at school, such as tidying the bookshelves, watering the plants, taking out the garbage, and running errands. Besides, they can also plan calm and soothing activities, such as listening to music at a quiet corner with headphones, reading storybooks, newspapers, and magazines, as well as, doing puzzles and Legos. Lastly, they can show students how to practice relaxation techniques, such as mindfulness, yoga, and stretching to enhance their motor creativity.

To conclude, this study has provided novel information on the OEs among the gifted in Selangor, Malaysia, who are primarily characterized by sensual and intellectual OEs. As the current sample consisted of only 64 students who are gifted from one location, replication of the current study should be carried out in other Malaysian states by using more diverse samples to increase generalizability of findings. Additionally, future research on OEs should compare the gifted with average students and students with

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special needs to determine if their clusters differ significantly in relation to such variables as gender, age, ethnicity, and parenting style. Lastly, this study should be replicated among the gifted based on other aspects (e.g., innovativeness, leadership, performing arts, fine arts) to examine the relationships between various types of giftedness and dimensions of OEs.

Ethics Approval and Consent to Participate

This study has strictly adhered to all ethical procedures involving the use of human subjects. Informed consent was obtained from all respondents who were ascertained of their anonymity, with their responses kept strictly private and confidential. Moreover, the data would be de-identified and securely stored in a strong room. Lastly, respondents were also informed that the study was of low risk and that they could stop participating any time without any repercussions.

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Conflict of Interest

The authors report no potential conflict of interest regarding this study in terms of the research, authorship, or publication of this article.

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