

# Digital Mental Health: Enhancing Resilient Family with Single Parenthood

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**Abstract:** *Digital mental health (DMH) interventions, treatments and services are pertinent for the purpose of assessment, prevention, support and promotion in mental health recovery. The influence of technology and digital competency is significant to help enhance psychological and mental well-being among the family members especially with the single parenthood experiences. This study therefore, aimed to enhance the mental health of the single parenting family using need analysis for DMH services development. Its focus was on the development of technology assisted intervention strategy for the single parents using intra-familial approach to establish DMH. The study focused on family communication patterns, family functioning and family organization models for problems identification using a need analysis procedure. Survey was utilised online to identify the contributing factors affecting the problems of the family in the single parenthood. Using purposive sampling technique, 100 single parents, age ranging from 30 to 60 years, were recruited from the Malaysian Single Parents Community, via the digital platforms for completing the online survey. The Revised Family Communication Pattern Instrument and Family Functioning Scale were used with psychological burden questions developed to measure the mental health of the single parents before, during and after COVID-19. The survey included Technology competency, involvement and accessibility to measure the usage of technology for DHM development purposes. The study indicated family communication problems and family dysfunctions which derived into further mental health and other psychological problems among the members in single parenting family. It was found that single parents developed different patterns of family communication and family organization to function the role as a single parent at home. It was also indicated that the needs of digital technology to have establish intervention strategy implied significant demands in this IR 4.0 digital family.*

**Keywords:** Digital Mental Health; Technology competency; Resilience; Single parents

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## 1. Introduction

Digital mental health (DMH) interventions, treatments and services are effectively useful facilitating the mental health promotion, support, as well as recovery among people via digital resources such as chatbots, virtual reality, online telephone crisis and counselling services and digital magazines (Baños et al., 2022; Hamdoun et al., 2023). The development of DMH interventions, treatments and services has been well-known and its research has been conducted by different mental health professionals to provide solutions in mental health recovery and resiliency (Hamdoun et al., 2023). The importance of DMH is highlighted to digitalise psychological interventions, treatments and services to ease community in line with the concept of IR 4.0 for digital family (Baños et al., 2022; Hamdoun et al., 2023), especially with single parenthood.

In Malaysia, the focus of single parenthood has also been significantly importance, especially in the concern of the government, NGOs and other related agencies in dealing with single parents (Department of Statistics Malaysia, 2011; Kassim et al., 2021). The increased rate of single mothers approximately 235,240 was statistically recorded, in about 1.7% of the total Malaysian population (Manat, 2019) to compare to the single fathers. Little concerns have been paid to the increased rate of single fathers and the role of the single fathers in their child/children upbringing, despite facing similar challenges with the single motherhood (Wiki Impact, 2021).

Numerous researches identified significant factors of development of health, education, and behaviours among children with single parenting (Fergusson et al., 2007). Research indicated that, failure to perform the significant role in single parenthood leads to children's problematic habits, psychological distress, and low achievement in the academic (Goldscheider & Kauffman, 2006; Livingstone, 2013; Sarsour et al., 2010). Children with single fatherhood experienced father's negligence and incompetent to compare to the single motherhood, while those with single motherhood developed significant psychological distress because of a lack of additional assistance with household issues leading to imbalance of the children's well-being (Abd Hamid & Salleh, 2013; Livingstone, 2013). In Malaysia, about 75% of single mothers live in poverty (Human Development & Family Studies, 2015; Aw & Sabri, 2020) and the economic hardships of female-headed single parents are the results of low wages, and insufficient job prospects (Ozturk & Boylu, 2015; Kramer, n.d]. It was reported that 4.5% of the population in Malaysia were single, widowed, divorced kids or permanently separated from their spouse (Aperribai et al., 2020).

Raising a child or children in a two-parents household is tough (Brown, 2019), however, single parents' households may need more psychological and mental health readiness in their child/children upbringing with more interventions and strategic solutions to overcome the issues of single parenthoods (Zartler et al., 2014; Rahman et al., 2017; Kasuagi, 2017; Taylor et al., 2020). The increased issue of mental health among family members in the single parenthood experiences become the global concerns. Many psychologists and psychiatrists have reported an influx of people seeking mental health support even during and after the pandemic (Fitriana et al., 2020; Naser et al., 2020; Gewertz, 2021; Santamaria et al., 2021), with the unprecedented global health crisis causing an increase in anxiety and depression as well as exacerbating existing mental health conditions among the family members of the single parenthood experiences (Supratman, 2018; Taylor et al., 2020; Gewertz, 2021; Tzung-Jeng et al., 2021; Hereyah & Purwanti, 2021).

Family communication and organization are among the most important factors in single parenting. Children's self-concept and family relationship can be maintained with family communication strategy (Allen, 2016). Single parenting communication, attachment and interaction with the children will help enhance their mental health, thus improving well-beings (Abd Hamid & Salleh, 2013). In family communication and organization strategy, democratic and coercive communication play key principles to determine and maintain the flow of conversation between single parent and his/her child/children (Supratman, 2018). Family communication patterns theory further emphasizes its important elements in conversation orientation and conformity orientation, highlighting high and low consensual, protective, pluralistic, and laissez-Faire approach of effective communication technique (Allen, 2016). Concurrently, family functioning is another key factor in shaping the child/children's behaviours. The updated version of family function theory in Skinner's family process model theory, it highlighted two important dimensions; soft index and rigid index (Dai & Wang, 2015). The theory emphasized on seven core elements of the family function, expanded from McMaster's family functioning theory (Dai & Wang, 2015). focusing on the interaction of the elements in family functions.

In many of the single parenting issues, family dysfunction leads to the occurrence of deviant behaviours and suicidal ideation among children (Abd Hamid & Salleh, 2013; Cong et al., 2020), of sleep deprivation, stress and anxiety, depression and other mental health issues among the single parents (Golombok et al., 2016; Mohd Jaladin et al., 2020; ; Taylor et al., 2020; Hereyah & Purwanti, 2021) of economics instability, low wages and insufficient job prospects (Ozturk & Boylu, 2015; Kramer, n.d), of living in poverty (Aw & Sabri, 2020). Despite experiencing such life difficulties and living with adversities, single parents deserve to learn and experience good quality of life to enhance positivism, life satisfaction and meaningfulness (Mohd Jaladin et al., 2020). Such aspects of positive orientation in life does not only escalate good attitudes and behaviour of the child/children (Fitriana et al., 2020) but more importantly, it also empowers the single parents to be resilient in their life despite adversities (Yee & Wan Sulaiman, 2021; Mohd Jaladin et al., 2020).

Numerous researches identified factors to increase resilient life for single parents and children. Single parents who experience resilient children living with single parent families coped well in their lives as compared to other children in a complete parenthood (Zartler et al., 2014; Omar, 2017). In Malaysia, a few studies on coping mechanisms through creative group counselling (Kasuagi, 2017; Mohd Jaladin et al., 2020), community-based intervention (Livingstone, 2013; Health, 2021) strategic implementation and recognition of law (Golombok et al., 2016) to help empower single mothers, have attracted the attention of researchers across disciplines and rises the government concerns. A few studies and articles were also published on the issues of single mothers. However, limited research was conducted on the approach of intra-familial relations to enhance the family well-beings and to maintain family communication, family organization, and family functioning between single parent and his/her child/children. Limited studies and articles were found with regards to the importance of DMH interventions, treatments and services used by the single parenthood. Therefore, the current study aimed to investigate the development of digital interventions via intra-familial relations approach, to include family communication, family functioning and family organization for enhancing the psychological and mental well-being of the single parents and their child/children and those other immediate family members. The technology assisted intervention for single parents is yet to be investigated with regards to the single parenthood, highlighting the use of digital services to treat mental health issue and to promote recovery strategies for enhancing resilient single parents and their family members.

Therefore, it is significantly important to establish the conceptual framework of the technology assisted intervention strategies for the single parents as to fulfil the demand of the technology usage, in line with IR 4.0. Technology assisted intervention is much required to use in any condition at users' convenient time and space and it responds to the global needs of digital education for the community, especially those are in need of immediate strategies for family problem solving, pertaining to psychological or mental health problems. The predicted outcome of the current study will be the intervention strategies using technology-based presented in Website or in the Mobile apps to be used later as the e-intervention module for the single parents serves to provide with some strategies for the single parents enhancing their family well-being. The outcome of the study will bring constructive impact to single parent families in terms of acquiring more accessible aids at their convenience.

## **2. Literature Review**

Single parenting has attracted global concerns and becomes the important focus in the government and parliamentary agenda. In Malaysia, the budget for the group of single parents is placed under Malaysia Short-term Employment Program (MySTEP), where single mothers are provided with the Jaminkerja initiative by the government with RM4.8 billion budget to provide 600,000 job opportunities via employment incentives (Kassim et al., 2021). Such an increase in the 2022 budget for single mothers aims to empower single mothers for work, as the result of significant impact of job losses during the COVID-19 pandemic. Similar financial crisis is also experienced by the single parents', especially during the time of MCO implementation, where both paid and unpaid employment have been tremendously affected. This causes the occurrence of psychological and mental health issues for both single mothers and single parents (Chan, 2021; Abdul Khaiyomz, 2020; Wiki Impact, 2021), to which single mothers experienced lower earning and living more in poverty to compare to their counterpart (Gloster et al., 2020; Kramer, n.d).

Numerous researches have been conducted to focus on family struggles, relationship, functioning, devastation and adversities, during the COVID-19 pandemic, affecting family members' psychological and mental well-being (Ho et al., 2020; Chua et al., 2021; Davis, 2021; Herfinanda et al., 2021; Sigle-Rushton & McLanahan, 2004). The lockdown implementation contributed to the detrimental impact on family and individual's mental health, across nations (Aperribai et al., 2020; Gewertz, 2021; Santamaria et al., 2021). It becomes a major stressor for the family, resulting in deprivation of social and family relationships (Naser, et al., 2020; Tzung-Jeng et al., 2021) and in the increased rate of anxiety, depression, and related psychological and mental issues (Stanca, 2012; Rutherford et al., 2015).

The discussion on the important contributing factors and the consequences of single parenthood has been perennial, even before the strike of the current pandemic. Exposure to single parenthood during childhood has also become the focus of research across disciplines. Such factors were found to be one of the strongest predictors of development of the child/children's behavior living with single parent, in young adulthood. The association reflected familial and social contexts in which single parenthood affects the child/children's psychological and emotional consequences due to the changes of the family structure (Fergusson et al., 2007). Accordingly, changes in the family structure results in the changes of the child/children's residence and education (Jiang & Fung, 2019) leading to parental attitudes and behaviours that affect the critical development of the child/children in the emotion and self- conceptualization (Fitriana & Ramli, 2019; Hereyah & Purwanti, 2021).

Numerous research also focused on the adaptation and relationship between the single parent and his/her child/children (Park et al., 2019) and the negative effects experienced by the child/children who grow up in a single parent household (Jiang & Fung, 2019). In their earlier research, Sigle-Rushton and McLanahan (2004) also reported that children who live with a single mother perform poorly in terms of education, financial stability, physical and psychological well-being. Children who live with single parents often experience adjustment problems (Hereyah & Purwanti, 2021), antisocial behavior in the early stage of transition (Medeiros et al., 2022) suicidal ideation (Cong et al., 2020) and many other psychological problems. For the child with single motherhood, the absence of a father figure most likely generates feelings of abandonment and stress in children (He et al., 2021; Taylor et al., 2020) while the child with single parenthood experiences the absence of a mother figure to be mostly emotionally unmanageable and less nurturing being (Abd Hamid & Salleh, 2013; (Hereyah & Purwanti, 2021). The impact of divorce on children's psychological well-being is devastating, living in vulnerability with stress, anxiety, and depression (Goldscheider & Kaufman, 2006; Sarsour et al., 2010). The role and responsibility of the single parents in the family are contingently demanding and challenging, time consuming and expensive (Rajak & Shaw, 2021).

Family communication, organization, and family functioning have been discussed by different fields of research to contribute to the significant impact of intrafamilial relationship between the parent and the child (Supratman, 2018; Allen, 2016). The consistent family relationship and family structure lead to the development of emotional regulation of single parents and the child [49], especially during the time of crisis (Rutherford et al., 2015). Parents who value emotion control by reappraisal are more likely to help their children regulate their emotions. Rutherford and colleagues (Yang et al., 2021) also found that emotion regulation in parenthood helps parents develop the capacity to maintain their self-concept while also promoting regulation in their child (Supratman, 2018) which is critical during early child development. Additionally, children acquire emotion regulation skills through parental guidance and that parent-child attachment has an impact on parenting and a child's socio emotional growth (Kusyanti, et al., 2022). Jiang and Fung (2019) in their earlier research explored parenting coping methods involving confronting an issue to assess the effects of a stressor or set of stressors, while emotion- focused coping involves addressing the emotional pain, induced by the stressor or set of stressors.

Abd Hamid and Salleh (2013) proposed on the single parenting strategies. Through in-depth interviews with parents from various careers, they found that single working mothers' coping mechanisms mostly consisted of internal and external support systems to include access to family members, friends, and neighbors, and is available in the form of social care via non-governmental organizations, welfare institutions, and counselling services. Family becomes the prime source of encouragement as it cultivates the feeling of being cared for, cherished, and appreciated (Abd Hamid and Salleh, 2013).

Aw and Sabri (2020) further studied on the single parents' locus of control which is indicated as one of the important elements in the structure of family functioning (Dai & Wang, 2015; Cong et al., 2020). Self-efficiency was also investigated to determine its impact on well-being of the single parents and found that locus of control and self-efficacy were significantly associated with psychological and mental well-being of the single parents. In enhancing the well-being of single mothers is lacking (Dai & Wang, 2015). Therefore, the effective coping mechanism for the single parents to enhance their well-being is to focus on the significant

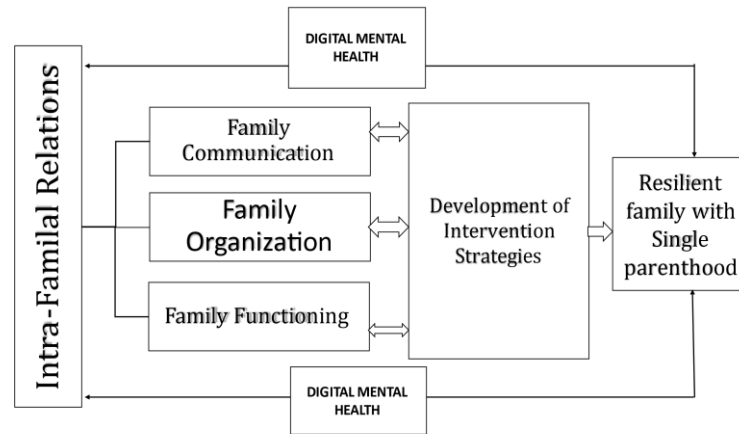
strengths of self-concepts, empowering their locus of control and enriching their self-efficacy by maintaining soft-index and rigid index in the family interaction (Dai & Wang, 2015).

Prominent and profound research with different coping strategies and based interventions have been conducted across the globe and in Malaysia, those studies significantly contributed to many aspects of life which are importantly needed by the single parents. Nonetheless, research on the development of intervention strategies using digital technology is yet to be investigated and conducted for the single parents, based on intrafamilial relations approach in enhancing family well-beings, in Malaysia. In this modernized era of technological advancement, the internet accessibility has been revolutionizing the way people communicate and managing their personal as well as social lives. Previous research stated that the usage of digital devices such as mobile phones is expanding rapidly due to the rising mobility of contemporary society (Park et al., 2019). The exponential growth in the penetration rate of handheld devices can be seen throughout all Asian countries including Malaysia. In Malaysia alone, the penetration rate has reached 100.8 percent as of second quarter of 2009 (SKMM) (Malaysian Communication and Multimedia Commission, 2009). The easy access of internet facilities by digital devices has made communication convenient and simple. Thus, the adoption and appropriation pattern of online (web-based) applications is gaining much interest among researchers in the mobile technology communities (Rajak & Shaw, 2021; Yang et al., 2021; Kusyanti, et al., 2022). While technology adoption (Medeiros et al., 2022) and acceptance model (Alexandra et al., 2021) have been highly cited in recent research in ICT pursuit, newly found models such as technology assisted intervention are also gaining acceptance in explaining the establishment of technology assisted intervention strategies in single parents' phenomena.

The use of the technology assisted intervention in the current study is for the conceptual development. The study sought to propose the concept of utilizing technology in the intervention strategies module as the outcome of the study. Such Module of intervention based on intra-familial relations approach aimed to be further developed in a computer operating system or mobile apps for the single parents to be used at their convenience.

## **2.1 Conceptual Framework**

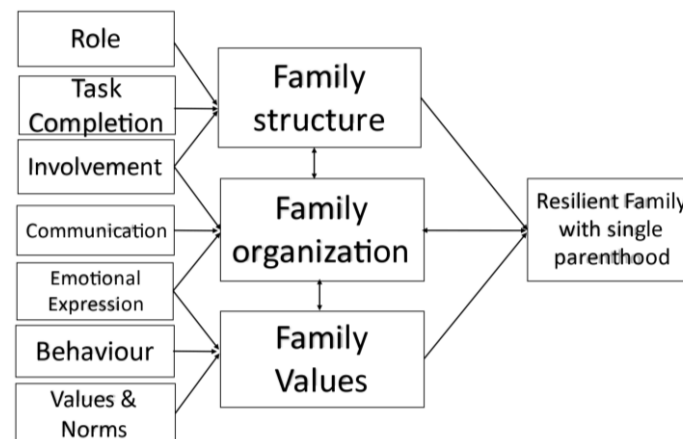
The study highlighted significant factors of family communication, family organization and family functioning as important key points in the development of intervention strategies for developing digital mental health intervention, treatments and services to enhance resilient family with single parents. The three essential elements of intra-familial relations are the useful approaches in determining the factors contributing to the development of DMH as intervention strategies. The following portrays the conceptual framework of for mental health recovery in the family with single parenthood. The following showed the conceptual framework for the study (Figure 1):



**Figure 1: Research Conceptual Framework**

## 2.2 Theoretical Framework

Skinner's family process and McMaster family functioning are adopted to emphasize the important factors in family structure, family organization as well as family values. Family communication patterns theory includes conversation orientation and conformity orientation, highlighting high and low consensual, protective, pluralistic, and laissez-Faire approach of effective communication technique (Allen, 2016), Skinner's family process model theory, with two important dimensions; soft index and rigid index, emphasizing seven core elements of the family function, expanded from McMaster's family functioning theory (Dai & Wang, 2015). Those highlighted dimensions in both theories are synchronized in each element of family structure, family organization and family values to promote the significant development of resilient family with single parenthood. The two theories signify the concept of DMH interventions, treatment and services whereby following figure 2 highlights the associated approaches in each element of family process and family functioning.



**Figure 1: Skinner's Process Family Theory & McMaster Family Functioning Theory**

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## 3. Materials and Methods

The methodology is based on the approach of intra-familial relations to include the two fundamental theories of Family Communication and organization (30) as well as Skinner's Family process model Theory (Dai & Wang, 2015). The main objective for this research was

to identify significant factors contributing to the problems among Malaysian single parents. The need analysis was used to generate findings for the research question in this piloted technique of the survey. The main research question was “What are the significant factors contributing to the problems among the Malaysian single parents in terms of their family communication, family organization and family functioning?”

Need analysis procedure requires survey to identify the contributing factors affecting the problems of the single parents. Identification of the factors from intra-familial relations approach will be taken from Family Communication Pattern Theory and Skinner’s process model Theory. The online survey was disseminated to the selected groups of single parenthood community in Malaysia via the digital platform e.g. organization Facebook, with the permission granted by each president or the leaders of the groups. The selected of 28 volunteers out of the initial 100 participants for the purposive sampling technique is sufficient for the initial phase of need analysis in the study (Battaglia, 2011) and this pilot research was validated using experts’ validation technique and theoretical elements in justification of survey development.

The ethical clearance was approved by the IUMWREC along with the informed-consent form for the participants to agree. The form for the agreement was stated in the cover page of the Gform for the participants to read and to proceed for the survey if they agreed to it. It also included the information on their right to withdraw from being the participants. Debriefing form was also attached in the Gform for the participants to be well-informed and for the researchers to thank them for their participation.

The selected participants were contacted based on their agreement, and informed consent was provided to each participant. The procedure was performed online. The selected participants were given the survey consisting of demographic information and other questions related to components of Family Pattern Theory and Skinner’s process model Theory, to be disseminated to the members of the community, based on the inclusion criteria; Malaysian single parents, age ranging between 30 – 60 years, having one child and more, not supported by the partner, and not diagnosed with any mental disorders. The age category was selected based on the rate of divorce occurs in Malaysia as reported by Department of Statistic Malaysia (Department of Statistics Malaysia, 2011) in between 30s and those single parents within 40 - 60 years’ experience significant journeys of their single parenthood. The selection was based on purposive sampling technique in which only those single parents with the inclusion criteria and those who are willing to be taken in the study with their consents are selected.

#### **4. Results and Discussion**

The results of the study indicated in the following table 1 that showed the frequency of factors occurrence in the life of single parenting experiences. It showed several factors contributing to the demographic characteristics of single parents which indicated two associated factors to affect the life of single parents with their family. Table 1 showed factors from demographic characteristics which indicated their experiences recorded in the percentage.

**Table 1: Demographic Characteristics of Single Parents**

Variable	Sub-variable	Percentage
<b>Periods Living With Partner</b>	More than 5 years	70.4
	3 – 5 years	22.3
<b>Current Stay</b>	With child/children	48.1
	With parents & child/children	29.6
	Alone & visiting child/children	14.8
<b>Reasons For Divorce</b>	Conflicts/strained relations	18.5
	Third person	14.8
<b>Involvement In Parenting</b>	both separated parents	29.6
	Non-involvement Ex wife/husband	25.9
	Based on chance/availability	25.9
<b>Hoping Ex Partner's Involvement In Parenting</b>	High expectation, more and consistent involvement in parenting	59.3
	No expectation, as long as ex partner has some involvement in the child/children's life	33.3
	Prefer not to involve at all, no existence in life	7.4

It showed that 70.4% of single parents lived with their partner more than 5 years, while 22.2% lived together in about 3 – 5 years before separation. The current stay factor of the single parents showed that 48.1% live with their child/children, while 29.6% of single parents stay with their parents, and their child/children, and the other 14.8% of them stay alone at home to visit their child/children regularly. Among the single parents, 18.5% experienced conflict/strained relationship factor as reasons for their separation while 14.8% reported to have issues with the third person. For single parents' involvement in parenting, results showed almost equal percentage in their experience of parenting the child/children. 29.5% of single parents involved in parenting the child/children, while 25.9% reported to have their partner either not involved in parenting or parenting the child/children based on the availability of chance and time. It was also reported that 59.5% single parents highly expected their ex-partner to involve in more consistent in their parenting, while 33.3% reported no expectation towards their ex-partner in parenting, as long as the ex-partner showed involvement in their child/children's life. Only 7.8% reported no expectation at all from their ex-partner and they do not feel of the ex-partners' existence.

Further results indicated in table 2 showed the well-being factors contributing to the occurrence of psychological and financial problems among the single parents in Malaysia. Factors such as benefits required, inspiration and motivation as single parents, stress relief, relationship quality, feeling of being discriminated, and the hardest factors in single parenting. The use of these factors was validated in Skinner's theory of Family Process and McMaster's theory of Family Functioning.

**Table 2: Contributing factors on Well-beings of Single Parents**

Variable	Sub-variable	Percentage
<b>Benefits Required By Single Parents</b>	Financial benefits	51.9
	Other benefits & exemptions	33.3
<b>Inspiration &amp; Motivation As Single Parents</b>	Self-equipped with information from many resources	44.4
	Inquire friends' advice for parenting	22.2
	Involvement in the community	7.4
<b>Stress Relief</b>	Quality time with child/children & other family members	48.1
	Travelling	14.8
	Therapeutic sessions	7.4
<b>Relationship Difficulty</b>	Hard, depending on several factors	77.8
	Difficulty/pressure to be the 'second' parent	14.8
<b>Feeling of Being Discriminated</b>	In a few related issues	59.3
	In the community	18.5
	In close & extended family	11.1
<b>The Hardest Factor In Single Parenting</b>	Financial	59.3
	Loneliness	11.1
	Finding Quality Time/Selfcare	11.1

Table 2 indicated 51.9% of single parents' problem in Malaysia is the financial issue. Single parents reported that they require financial benefits from any agencies. 33.3% require other benefits and exemptions. The study also resulted in 44.4% of single parents to have self-equipped with information from different resources as ways of getting inspiration and motivation in their life. While 22.2% require friends' advice on parenting, only 7.4% involve themselves in the community events for parenting resources. The results also indicated that stress relief among the single parents was through the quality time they spent with the child/children and other family members in 4.1%. Travelling and therapeutic sessions were reported as other stress relief mechanisms with 14.8% and 7.4% respectively. Meanwhile, 77.8% of single parents reported to have hard relationship quality and 14.8% reported to have difficulties to be the 'second' parents. In terms of feeling of being discriminated, 59.3% reported to experience discrimination in a few related issues. While single parents experience discrimination in a few related issues and 11.1% explore the experience in the community.

Results further indicated the important use of technology and social media among the single parents in Malaysia. Descriptive analysis showed the frequency and percentage each important variable and sub-variables in the life of the Malaysian single parents to represent their involvement in social media usage as well as the significant influence of technology in their communication and interaction, either within the family range or in the other external community.

Furthermore, table 3 showed the percentage for each use of phone, computer and tablet among the single parents with 75%, 33.7%, and 14.4% respectively. Results indicated that the device use among single parents are highly significant in their interactions. Of those communication platforms, social media (WA, FB, IG, TikTok) are among the highest rate of platforms usage with 75%, followed by smartphones with 17.9%. Of those social media used, FB, TikTok and IG rated to be performed more than 2 hours with 39.3%, 35.7%, and 21.4% respectively, indicating that single parents are used to these social media in more or less frequent towards one after another. Almost similar percentage showed the usage of the by single parents in less than an hour with 35.7% in TikTok, 32.1% in IG and 7.1% in Twitter, and in between 1 hour to 2 hours with FB 32%, IG 2.6% and TikTok 21.4%.

**Table 3: Technology usage by single parents**

Variable	Sub-variable	Percentage
<b>Devise Usage</b>	Frequent use of phone	75
	Frequent use of computer	33.7
	Frequent use of table	14.4
<b>Communication Platform</b>	Social Media (WA, FB, IG, TikTok)	75
	SmartPhone	17.9
<b>Time Spent In Social Media- less than 1hr</b>	Tik Tok	35.7
	IG	32.1
	Twitter	7.1
<b>Time Spent In Social Media- more than 2 hrs</b>	FB	39.3
	TikTok	35.7
	IG	21.4
<b>Time Spent In Social Media- between 1hr- 2hrs</b>	FB	32
	IG	28.6
	TikTok	21.4

Descriptive analysis further indicated that the importance of digital technology and the needs for the digital technology significantly influenced their daily usage of information technology for the different benefits in life. It showed in table 4 that the single parents required to have the digital technology for their benefits. It is shown that 39.3%, 35.7% and 25% are close percentage to each other, with majority of single parents perceived the IT literacy is highly important and demanded in life with 92.9%. The analysis also showed on how single parents seek information to equip themselves with the knowledge on single parenting by using digital technology with 42.3% of them always engage with IT usage, while 32.1% and 25% of them frequently and only sometimes used the technology to find information about single parenting. Of all the knowledge and information required by single parents on the digital technology, 46.4% stated for the skills of IT/Technology to sharpen, while 21.4% on technical skill of IT, and 14.3% required IT/technology for their benefits in business or trading purposes.

Table 4 also showed two other important variables developed for the need analysis procedure in identifying challenges faced by Single parents in the use of technology with 42.9% for understanding concept or new technology issue, while 14.3% for financial challenge and 2.5% for no challenges faced. In addition, the single parents perceived negative implications of using digital technology to have problems with their eyes in 46.4%, with their sleeping patterns in 28.6%, experienced headache in 7.1% and with their emotional disturbance in 3.6%.

**Table 4: Technology usage by single parents**

Variable	Sub-variable	Percentage
<b>Needs for Technology</b>	Highly needed	39.3
	Somehow needed	35.7
	Sometimes needed	25
<b>Technology for IT Literacy</b>	Yes	92.9
	No	7.1
<b>Technology Used to Access Single Parenting Information</b>	Always	42.3
	Frequent	32.1
	Sometimes	25
<b>It Knowledge/Info Mostly Required by Single Parents</b>	Technology/IT skills	46.4
	Technical Skills	21.4
	Business/Trading	14.3
<b>Challenges Faced In Technology by Single parents</b>	Understanding concept/new techno	42.9
	No issues	28.6
	Finance/Internet access	14.3
<b>Negative Implication Using Technology</b>	Eye problems	46.4
	Sleeping problems	28.6
	Headache	7.1
	Emotional disturbances	3.6

Results further showed the problems among single parents in their family process or family functions as well as in their family communication pattern. The need analysis identified several problems among single parents in their family process or family functions whereby the family communication with the child/children or other members of the family was not sufficient, displaced and masked. While faced with difficulties in the members' developmental tasks, the tasks were also reported to be unfunctional. The roles in the family are unintegrated, and single parents were found to perceive their problems in role juggling, and it is difficult to respond to changes in the family life cycles with unpredictable and inflexible control.

Table 5 also indicated some family communication problems faced by the single parents with their family members. It was identified that single parents perceived family communication difficulties in expressing their ideas and thought, where the family discussion was perceived as not open and honest, with single unified solution to problems, with ambiguity and uncertainty in communication and decision making. Single parents also perceived that communication in the family is unclear, and they revealed on controlling family decision with rules and traditions to follow by the child/children without question.

**Table 5: Family Problems Identification in Single Parenting**

Family Process	Famiy Function	Family Communication Pattern
Inflexibility and inadaptability to change in	Roles are insufficient and unintegrated	Family communications are not sufficient, displaced or masked
Family control is unpredictable and inflexible	Role juggling issues	Difficulties in expressing ideas/thoughts
Tasks identifications are not shared by family members	Unfunctional patterns of tasks	Do not engage in open and honest discussions
Hard to respond immediately to changes in family life cycles	Expected to follow rules and traditions without questioning	Ambiguity and uncertainty in communication & decision-making
Single unified solution to problems	Controlling the family decisions	Messages are indirect and unclearly delivered in the family communications

## 5. Conclusion

The current research used need analysis procedure in identifying the identifying some associating issues pertaining to single parenthood in Malaysia. Need analysis phase in this current study represented the first phase of the overall three phases to be used for the analysis of data in the development of digital mental health by using technology assisted intervention strategies technique for single parents. Need analysis required development of questions in the form of demographic information, family patterns and family functioning as well as the technology used by single parents. This particular phase highlighted the importance of descriptive analysis to identify issues faced by single parents in their family patterns, communication and interaction, as well as in their family function. This need analysis phase also required to develop some other questions to identify the important technology usage among single parents and those technological components are conceptually significant in the development of digital mental health (DMH), in the later phase, to assist single parents in their limited resources of single parenthood. DMH aims to also help single parents in further equip themselves with the knowledge and information on family mental health and other psychological concerns they might get from the use of the device. In this initial stage, the study aimed at identifying factors contributing to single parents' issues and their significant well-being as well as towards the significant contribution of technology usage which they experience importance in life as single parents.

Therefore, some variables and sub-variables were used to identify each frequency and occurrence using descriptive analysis. The findings of the study significantly indicated some associating issues faced by single parents in their family process or family function as well as in their family patterns of communication. The study also found the significant needs and importance of digital technology to be useful and beneficials for single parents in their efforts to seek more information and to equip themselves with knowledge of single parenting. Therefore, it is significantly importance to develop DMH using technology assisted intervention strategies to enhance resilient family with single parenthood.

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### Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this study.

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