



FAMILY FUNCTIONING AND ADOLESCENTS' SELF-REGULATION
COMPETENCIES IN ILLU ABBA BOR ZONE, OROMIA, ETHIOPIA

BY

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Family Functioning and Adolescents' Self-regulation Competencies in
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Declaration

I, the undersigned, declare that this dissertation work entitled “Family Functioning and Adolescents’ Self-regulation Competencies in Illu Abba Bor Zone, Oromia, Ethiopia” is my original work under my supervisor Dr. Daniel Tefera. It has not been presented for a degree in any other universities and that all sources used for this work have been duly acknowledged.

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The Dissertation work entitled “Family Functioning and Adolescents’ Self-regulation Competencies in Illu Abba Bor Zone, Oromia, Ethiopia” has been prepared under my supervision as a university advisor and I recommend that it is accepted as it fulfils the necessary requirements.

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This is to certify that the dissertation prepared by Wakgari Megersa Aga entitled: Family Functioning and Adolescents' Self-regulation Competencies in Illu Abba Bor Zone, Oromia, Ethiopia and submitted in partial fulfilment of the requirements for the degree of philosophy in Applied Developmental psychology complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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ABSTRACT

This study aimed at investigating the relationships between patterns of family functioning and adolescents' self-regulations competencies in Illu Aba Bor Zone, Oromia, Ethiopia. It employed a quantitative approach with a specific design known to be correlational. Based on stratified random sampling, questionnaires were administered to a sample of 400 high school adolescents in four districts of the zone. Descriptive statistics, MANOVA with follow-up univariate ANOVA, Pearson's correlation, and linear, multiple and stepwise regression were computed using SPSS. Mediation analyses were also performed using JASP 0.18.1.0. The finding shows statistically significant variations in family cohesion, flexibility, communication, and interaction ($p < 0.01$) across family structure. Also, cohesion, flexibility, communication, and interaction were all significantly differ across family sizes ($p < 0.01$). However, mixed results were observed with respect to economic status in that it resulted in variations in some patterns of family functioning whereas not in the case of others. The study found that family functioning patterns significantly correlated with adolescent self-regulation, with self-regulation's relationship with family communication being more significant than with other aspects. However, through stepwise regression two models were developed to determine the best predictors whereby coefficients for family communication ($\beta = 0.884$, $p < 0.01$) was significant; and coefficients for family communication ($\beta = 0.864$, $p < 0.01$) and adaptability ($\beta = 0.068$, $p < 0.05$) were significant and best factors for self-regulations. The model overall also significantly predicted self-regulation ($F_{(4,395)} = 364.82$, $P < 0.01$); hence, communication, adaptability, cohesion and interactions have substantial relations to self-regulation. Moreover, the mediation analysis showed that while family structure had mediating roles in the relationships between family functioning and self-regulation, family size and economic status didn't. Overall, patterns of family functioning significantly influence adolescent self-regulation, with well-functioning families promoting it and dysfunctional ones weakening it. Therefore, supporting families to maintain healthy functioning is crucial for promoting the development of self-regulation, leaving big implications for family intervention practices for adolescents' ultimate benefit.

Key words: family: cohesion; communication; flexibility; interaction; self-regulation

List of Abbreviations and Acronym

ANOVA-Analysis of Variance

CFA-Confirmatory Factor Analysis

CSA-Central Statistical Agency

CVI-Content Validity Index

EFA-Exploratory Factor Analysis

FACES-Family Adaptability and Cohesion Evaluation Scale

FC-Family Communication

FCoH-Family Cohesion

FDRE-Federal Democratic Republic of Ethiopia

FF-Family Flexibility

FI-Family Interaction

JASP-Jeffreys's Amazing Statistics Program

KMO-Kaiser-Meyer-Olkin (Test)

MANOVA-Multiple Analysis of variance

PAF-Principal Axis factoring

PCA-Principal Component Analysis

SCIFF-System for Coding Interactions and Family Functioning

SEM-Structural Equation Modeling

SPSS-Statistical Package for Social Science

SR-Self-Regulation

VIF-variance inflation factor

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CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

Family systems along with child's developmental outcomes have long been the concerns of professionals including developmental psychologists. Dai and Wang (2015) describe that the family as a basic unit of the society and important societal institution provides appropriate environmental conditions for each of the family members including the children and adolescents to develop in all aspects; i.e., physically, cognitively, socially, emotionally and in many other aspects. These authors noted that it is within the family system that different family functions are expected to be accomplished.

Within the family system, one of the functions is to provide the necessary support and warmth for children's development and simultaneously directing their development towards becoming a well-integrated person capable of living in the family, community and society (David, 1978). Hence, it is understandable that family functioning represents a condition in which a family operates as system where interactions, relations, the family rules and ways of sharing roles as well as the patterns of communications among the members are conducive for a positive development (Olson, 2007). In line with this, Matejevica, Jovanovica, and Ilic (2015) suggest that family functioning refers to a condition in which a family creates better situations for the development of healthy members considering the potentials of each of them. It can further be considered as organizational process that entails the family's integration as a whole rather than as simple sum of the number of members emphasizing the importance of relations,

communications and overall interactions. Thus, as suggested by Olson (2010), this emphasis of the family functioning on family relations, communications and interaction shows that it has various dimensions in it mainly cohesion, flexibility and communication. On the other hand, it becomes important to note that each of the components of the family functioning differs across families depending on some family characteristic variables mainly family type or structure. Villarreal-Zegarra and Paz-Jesus (2017), for instance, suggested that there are significant differences in the family cohesion (i.e., emotional closeness) as the function of family structure favoring the nuclear over the non-nuclear families. Supporting this, Bello, Irinoye and Akpor (2017) noted that there was a significant association between family structure and family functioning. The writers reported in their study findings that two-parent families (i.e., intact families) had a higher mean scores on family functioning patterns compared to single-parent families whose mean score on family functioning patterns was relatively lower implying that a nuclear family was much associated with higher family functioning patterns than the single parent family did. On the other hand, family functioning have impacts or relationships with adolescent outcomes; notably, self-regulation (Matejevic, Todorovic & Jovanovica, 2014; Kim, 2015; Murray & Rosanbalm, 2017; and Lin & Yi, 2017). However, there is a need to conduct this research in our context. Yet, it becomes important to enlighten the dimensions of family functioning before explaining the impacts or associations they have in the development of self-regulation.

Family functioning comprises of different domains or elements; mainly, family cohesion, family adaptability or flexibility, and family communication (Olson, 2010). Family cohesion refers to the emotional connection between family members. It refers to the emotional bonding that members of a family have with one another and the degree of individual autonomy

a member experiences in the family system (Olson, 2007). In the dimensions of cohesiveness, functionality of a family represents a balance between intimacy and commitment with tolerance for differences and separation (Durisic, 2008). The other component is flexibility or adaptability that represents the quality and nature of leadership and organization within a family, distribution of roles and rules of relationships (Olson & Gorall, 2006). Family communication is the third dimension of family functioning that is important for the development of the cohesion and the flexibility dimensions (Dai & Wang, 2015). Durisic (2008) suggests that family communication represents expression of thoughts and feelings in an assertive way among the family members while carefully receiving other members' thoughts and feelings. For this reason, it is considered a helpful dimension or element of family functioning that enables the family systems to influence their levels of cohesion and flexibility. In addition to cohesion, flexibility, and communication there exists general aspect of family functioning, i.e., family interaction that represents the behavioral aspect (Malik & Lindhal, 2000) involving overall family systems qualities and parenting behaviors (Henry, 1994) and therefore being conceptualized, here, as a behavioral and tangible representation of what is actually going on in the family.

The dimensions of family functioning can be healthy or unhealthy depending on the nature of the family environment. Above all, family functioning pertinent to cohesion and flexibility has healthy and unhealthy dimensions (Olson, 2010). In view of this, Olson (2011) identified that the healthy aspects of family functioning are characterized by “balanced or functional” cohesion and flexibility dimensions. On the other hands, the unhealthy aspects of family functioning are represented by the “unbalanced or dysfunctional” ones. Hence, as described by Olson (2010), the unbalanced ones are considered as dysfunctional and unhealthy ones. In this case, while balanced cohesion and balanced flexibility represent the healthy family

functioning, the unbalanced dimensions, i.e., unbalanced cohesion namely, extreme cohesion/enmeshed and disengaged and unbalanced flexibility, chaotic and rigid are the features of unhealthy family functioning. In line with this, a study conducted by Matejevic *et al* (2014) shows that while the unhealthy dimensions of family cohesion and flexibility had an association with adolescents' undesirable behavior, the balanced and healthy ones had a more positive outcome in terms of children's behaviors. For instance, the study reveals that the disengaged dimension of cohesion and the rigid as well as the chaotic dimension of adaptability were directly (positively) associated with undesirable behavior implying that undesirable behaviors appeared more in these unhealthy dimensions of family functioning, i.e., in disengaged, rigid and chaotic families. In support of this, a study conducted on the relationships between unhealthy family functioning (i.e., a family in which the quality of relationships is low and is characterized by poor connectivity and adaptability, and poor communication), and externalizing behavior problems appeared more (Durisic, 2018). And, of course, these externalizing behavior problems emanate from a failure to control or postpone undesirable impulses/behaviors (Gajda, Małkowska-Szkutnik & Rodzen, 2022) representing a lack of self-regulation. While a healthy family functioning creates all the necessary conditions, the unhealthy one discourages the wellbeing and overall development of the family members (Wakgari & Belay, 2021).

Aptly, it becomes important to comprehend the functionality of the family and its roles in terms of the development of self-regulation among adolescents. Self-regulation represents an attempt to modulate or inhibit actions toward a more adaptive end is important for developing socio-emotional competence and overall health development of adolescents (Geleta & Belay, 2022). Scholars confirm that for the development of self-regulation, the interaction that children have with their parents, caregivers, families as a whole and their broader environment play important roles

(Murray & Rosanbalm, 2017). Supporting this, Newman (2017) suggests that children are expected, from the sides of their parents and the community around them, to regulate their emotions and behaviors in order to be functioning members of the family and society. Trommsdorff (2009) also explains that there is always a familial expectation that requires children to master some self-regulatory skills although the expectation varies from culture to culture. It is such an expectation that determines the practices and guides children to develop self-regulation. Similarly, Kim (2015) substantiates that the self-regulatory processes basically emerge and develop from the child's interactions with the family. Lin and Yi (2017) also confirm that it is the family that provides a developmental framework for the socialization of self-regulation mainly the emotional and behavioral dimensions of regulation.

More explicitly, scholars discuss the roles of the different dimensions of family functioning, i.e., flexibility, cohesion, communication, and overall interaction in the development of adolescent self-regulation. For instance, as Rahmaninda and Mangunsong (2020) suggest, family flexibility plays an important role in the development of self-regulation because in a flexible family, various behavioral control styles (i.e., based on reasonable, adjustable, and negotiable rules) tend to be adopted; and roles and responsibilities are clearly and appropriately be allocated for members of the family promoting self-direction and self-regulation. Maabreh and Al-Masri (2020) also point out family flexibility mainly in terms of maintaining the necessary authority while respecting the adolescent's need for independence promotes the development of self-monitoring and regulation.

As far as the role of family functioning related to cohesion is concerned, a study conducted by Augustine, Koss, Smith, and Kogan (2022) showed that there was a significant positive relationship between family cohesion and self-regulation in late adolescence. A study

conducted by Augustine (2021) revealed that family functioning pertinent to cohesion had a statistically significant predictor of self-regulation. The study showed that, after controlling for other variables, nearly 6.25% of the variability in self-regulation was explained by family cohesion. It has also been pointed out that while a less cohesive family is characterized by harsh relationships affecting psychological adjustment that cause decrements in self-regulation, a more cohesive family mostly upholds a positive psychological adjustment that promotes better self-regulation. So, it has to be noted that as family cohesion can provide important emotional support and bonding to adolescents, it is considered to have a protective impact on their social and emotional development. Hence, a high level of family cohesion is related to a more positive emotional experience (Deng *et al.*, 2022) whereby emotional self-regulation is supposed to be one of these emotional experiences.

Scholars also confirm that family communication has a role in the development of adolescents' self-regulation. Reisy *et al* (2013), for instance, found out in their study that family communication patterns affect children's emotional self-regulation. In effective family communication, families are open to receiving and accepting their children's ideas along with its emotional expressions and generally dealing with them appropriately. This condition enables children to develop effective strategies for dealing with one's and others' emotions; i.e., a self-regulatory skill allied with the emotional dimension. On the other hand, in families where communication is limited and where children are expected to conform to everything (i.e., the ideas, the rules, and the thoughts) set by parents, weak interactions characterize the emotional climate of the family. Children in such families are not allowed to express their emotions; their emotions are not well attended by parents; and likely to experience difficulties in emotional and cognitive adaptability discouraging the development of mainly cognitive and emotional self-

regulatory skills. And, this has been empirically examined as some sources show. In a study conducted by Reisy, Javanmard, Shojaei, Ahmadzade, and Monfared (2003), it was determined that family functioning specifically communication had a relationship with adolescents' self-regulation in that conformity orientation or pattern of communication had a positive relationship with difficulty in adolescents' emotional self-regulation, the conversation orientation had a negative relationship with difficulty in emotional self-regulation.

The direct impacts or associations of various domains of family functioning on the development of self-regulation have been reported so far (Matejevic *et al*, 2014; Kim, 2015; Murray & Rosanbalm, 2017; and Lin & Yi, 2017). Nonetheless, it is relevant to assume that some family characteristic variables can moderate the impact of family functioning on self-regulation. The relationship between family functioning (e.g., cohesion dimension of family functioning) and adolescent self-regulation may happen via the moderation effect of some family characteristics (e.g., family structure). So, in a case where this third variable is considered, it means that the moderating role of family structure and then the indirect effect of family functioning on self-regulation becomes under scrutiny.

Finally, the rapid physical development, cognitive changes, and sexual maturity that appear along with puberty and the various risks adolescents tend to take in relation to sexuality, temptations to use drugs and alcohol that might be prompted by their friends, exposures to social media and social networking sites (Alsaif, 2016), and the challenges related to familial factors demand adolescents to develop self-regulation as coping mechanisms for it is considered as a protective factor against those risky behaviors (Quinn & Fromme, 2010). It is, therefore, with these conceptions that the study intends to examine the relationships that family functioning (i.e.,

family cohesion, flexibility, communication, and overall interaction) have with self-regulation among adolescents in High School in Illu Aba Bor Zone, Oromia, Ethiopia.

1.2 Statement of the problem

In Ethiopia, some evidences reveal that family as a system has not gained due emphasis by researchers. Taye (2021), in his study, reminded us that in Ethiopia, family assessment is rarely considered by academia. More explicitly, the role of family or functionality of the family as a system in the development of self-regulation among adolescents are rarely considered by researchers in our country for most of them seem to have been focusing on areas of parenting or parenting styles as far as the researcher's scrutiny is concerned. Hence, there exists a gap in this regard creating the need for examining how the functionality of the family (i.e., cohesion, flexibility, communications, and overall interactions) as a whole or system explains the variability in adolescents' self-regulation.

The National Children's Policy document of the Federal Democratic Republic of Ethiopia (2017) noted the presence of gaps in families in terms of creating a suitable family atmosphere which has an implication in ensuring the wellbeing of all family members thereby implying the need for family interventions mainly in relation to awareness creations. And, of course, the gap in creating a suitable home condition is explained by the functionality of the family (Matejevic, Jovanovic, & Lazarevic, 2014) that has various dimensions in it including building balanced family cohesion and adaptability as well as positive patterns of communications among the family members. Despite this policy statement, empirical evidence that shows the status of family functioning and related intervention with the aim of developing self-regulatory skills in adolescents seems to be non-existent on the ground.

More aptly, it is felt that family functioning specifically cohesion, flexibility, and communication along with their impacts on adolescents' self-regulation has not been sufficiently investigated. To this end, empirical evidence shows that studies dealing exclusively with the effect of each of the family functioning dimensions on adolescents' self-regulation appear to be very limited or non-existent. So lack of sufficient studies on family functioning in terms of its impact or association with adolescents' outcomes in general (Zahara & Saleem, 2021) and their self-regulation in particular has been reported (Augustine et al, 2022). Few studies dealing with family functioning components or dimensions have focused on exploring internalizing and externalizing behavioral outcomes (Lin & Yi, 2017), relationship maintenance in a state of stress (Strutzenberg, 2018), mood and wellbeing (Fosco & Lydon-Staley, 2020) and other outcomes other than self-regulation. On the other hand, the association that family functioning dimensions (i.e., cohesion, flexibility, and communication) have with family structure has been examined in various studies (Wagner *et al*, 2010; Bello, Irinoye, & Akpor, 2017; Lin, Nortey, Hill, & Serpell, 2019). However, the moderating roles of some family characteristics (i.e., family structure, family size, and socio-economic status) in the relationships between family functioning and adolescents' self-regulation have not been well examined. The same is true for the moderating role of gender. This dearth of empirical evidences on whether or not family characteristic variables as well as gender of the adolescents can moderate the relationships that the different dimensions of family functioning (i.e., cohesion, flexibility, communication and overall interaction) have with self-regulation among adolescents implies the need for empirical examination in the actual context.

As a gap and rationale, the researcher's motivation to focus on the family, family atmospheres, family functioning, parental conditions and other related themes started during the

course work. The limited studies on family functioning at the national level and the absence of such a study at the local level, and the researcher's exposure to various sources and literature instigated further interest in the area of family functioning. More importantly, Illu Aba Bor is the remot part of our country that the urgency of conducting such a study becomes logical. It will also be easy for the researcher who, of course, work in Mettu university to design some family intervention programs in the zone and towns.

For these reasons, the current study focused on investigating the relationships between family functioning and adolescent self-regulation among families in the context of Illu Aba Bor Zone, Oromia, Ethiopia. Explicitly, the study intends to determine the nature of family functioning (i.e., cohesion, adaptability, and communication) among the families and the level of development of self-regulation among adolescents; ascertain whether or not there are variations in family functioning across family characteristic variables; examine the amount of variance each of the family functioning dimensions are able to explain adolescents' self-regulation; check if some dimensions of family functioning are more relevant to the outcome variable than the others; and investigate whether the relationships between family functioning dimensions and adolescent self-regulation is moderated by family characteristic variables.

1.3 Objective

Having the gaps observed in mind so far in the preceding sections, as the major objective, this research is aimed at investigating the relationship between family functioning (i.e., cohesion, flexibility, communication and overall interaction) and adolescents' self-regulations competencies in Illu Aba Bor Zone, Oromia, Ethiopia.

1.4 Research questions

Considering the emergence of more multifarious patterns of families, family characteristics and family relationships and the roles they have in predicting children's developmental outcomes (i.e., mainly the child outcomes in terms of self-regulation), this study was intended to address the following basic questions.

1. What is the nature of family functioning (i.e., family cohesion, family adaptability, and family communication) and adolescents' self-regulation in the context under consideration?
2. What is the level of development of self-regulation of adolescents in the study area?
3. Does the nature of family functioning (i.e., family cohesion, family flexibility, family communication, and family interaction) differ by family characteristic variables (family size, family structure and family economic status)?
4. What are the individual and combined predictive contributions of patterns of family functioning to the variations in self-regulations among adolescents?
5. Do family characteristics variables (i.e., family size, family structure and economic status) moderate the relationship between patterns of family functioning and adolescents' self-regulation?
6. What possible intervention strategies are there to improve or enhance patterns of family functioning such as family interaction, communication, cohesion, and adaptability?

1.5 Significance of the study

The findings of this study may widen family members' and other people's understandings of the relationships that the crucial components of family functioning have with adolescents' developmental outcomes, particularly their self-regulation. The study further may extend the families' and especially the parents' understandings of the relationships that the key family

functioning elements mainly family cohesion, family adaptability/flexibility, family communication and overall interactions have with the adolescents' self-regulations.

Explicitly, the study enables families and parents of adolescents to examine and understand their family atmosphere in terms of cohesion, adaptability, communication, and interaction and recognize how these family functioning elements are related to adolescents' self-regulations. In addition, a better understanding of the importance of the well-adjusted components of the family functioning, the study motivates family members to develop and maintain amore balanced states (i.e., balanced family cohesion and balanced family adaptability) of the family system. The fact that the parents will gain knowledge on the crucial role of family communication and confidence in maintaining enthusiastic family communication with their children also represents the importance of the study.

Moreover, in dealing with adolescents' self-regulation, the findings would help different bodies including educators and school teachers gain the necessary knowledge and understanding that would, in turn, help them actively and responsibly support the development of self-regulatory skills among adolescents.

The other practical importance of this study is that it enables the families and mainly the parents to gain some important skills for better family functioning that further improves children's developmental outcomes in terms of self-regulation for their long-term goal attainments.

Of course, the eventual importance of this study is that it benefits the adolescents. The study, through encouraging different practitioners to design family intervention programs and further promoting healthy family functioning, ultimately enables adolescents to develop better

emotional, behavioral, and cognitive self-regulatory skills. This means, in general, the study contributes to the improvements in family functioning (i.e., family cohesion, flexibility, communication, and overall interaction) that further upholds adolescents in developing the skills under consideration, here.

The other importance of this study is that it informs the policy makers to provide due emphasis in making policies and strategies with regard to family functioning and enables them to promote some family and parental support programs. Because the findings provide evidence that are consistent with the view that healthy family cohesion, flexibility, and communication had a positive impact on the development of adolescent self-regulation. The findings are expected to acquaint policy makers with the issue and enable them revisit any previous works in this regard.

Furthermore, the results of the study would benefit relevant government sectors and NGOs in designing various projects and programs related to family functioning. The mission of some government and non-governmental organizations (NGOs) is directly linked to ensuring a healthy family functioning that ultimately benefits children and adolescents. For such government sectors and NGOs this study provides empirical evidence that extends the scope of their practices with actual emphasis to strategies of promoting healthy family functioning that ultimately improves self-regulatory skill development among adolescents.

Lastly, the findings of the study are relevant in terms of attracting and motivating scholars from various disciplines (e.g., educators, psychologists, sociologists, social workers, and lawyers) to design researches of various scales on these family and family strengthening-related themes.

1.6 Operational definition of terms

In this research, terms such as family functioning, family adaptability, family cohesion, family interaction, family communication, and self-regulation are used recurrently. Hence, family functioning refers to a family's condition, characteristics, and nature of integration as holistic units that emphasize cohesion, adaptability, communication, and overall interaction determining the development of individual members mainly adolescents' self-regulation.

When it comes to family adaptability or flexibility, it is an aspect of family functioning that refers to the amount of change in family leadership and in relationship roles and rules as measured by the flexibility scale. Data on family adaptability or flexibility was captured by items with a rating scale format such as *"parents equally share leadership in our family"*, *"our family has a rule for almost every possible situation"*, and *"we shift household responsibilities from person to person"*.

Family cohesion is an aspect of family functioning that represents the degree of closeness, warmth, and generally the family members' attachments as measured by items adapted from ... Such items include, for example, *"family members like to spend some of their free time with each other"* and *"we feel too connected to each other"*.

Family communication is a dimension of family functioning that represents the family's capacity for positive communication within marital or family systems as the whole. Data on family communication was captured using items such as *"family members are satisfied with how they communicate with each other"*, *"family members are able to ask each other for what they want"* and *"family members try to understand each other's feelings"*.

Family interaction is the term that refers to the behavioral aspect of family functioning that particularly represents how family conflicts, disagreements, and problems are handled among the family members. It refers to the general aspect of family functioning that is more of the practical one in the actual family members' gathering setting. Data on family interaction was captured using a scale having different statements to which they show the degree to which they agree or disagree to its manifestations. For instance, an item representing "negativity and conflict: *i.e.*, family interaction characterized by expressions of tension, frustration, anger, irritation, and hostility", the one representing "alliance formation: *i.e.*, *existence of interaction pertinent to the different dyadic relationships in the family*"; and the one representing "opposition and defiance of child in interaction: *i.e.*, the degree to which the child displays oppositional, defiant, or belligerent behavior during the family interaction") were some of the statements in the tool.

Self-regulation is a construct that refers to an adolescent's capacity to rule and govern one's thoughts, emotions, impulses, and/or habitual behaviors in response to situational demands. Data on self-regulation, for example, was captured by items such as "*it usually becomes difficult for me to stop myself from doing something though I'm sure it is wrong/bad*", "*I can usually keep track of my progress toward my goals*", and "*I usually get upset easily and explode to people around me*".

1.8 Delimitation of the study

The study is delimited to investigating the relationships between the patterns of family functioning and the adolescents' self-regulation in four sample districts (*i.e.*, Mettu administrative town, Alle, Becho, and Didu Districts) of the Illu Abba Bor Zone of Oromia National Regional State, Southwest Ethiopia.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1 Overviews

In this chapter, theoretical and empirical literatures are reviewed on the conceptualization of family functioning and adolescents' self-regulations.

In the first place, attempts are made to describe the family functioning; what it is all about, its patterns with particular emphasis to cohesion, adaptably/flexibility, and communication. The links that the family functioning has with family characteristics (e.g., family size, family relative economic status, family structure, parental education, occupation, and the like), the relations it has with parenting and with adolescents' developmental outcomes are clarified. Subsequently, adolescent self-regulation with particular emphasis to the prominence of self-regulatory skill development among adolescents is conceptualized. And, finally, the relationships between patterns of family functioning and adolescents' self-regulations pointed out in the reviews.

2.2 Family functioning

2.2.1 Meaning of family functioning

Family is the basic component of a particular society that is very important for the development of each of its members (Dai and Wang, 2015). It is a fundamental unit of a society that should be understood in terms of its holistic manner rather than in term of its individual members. Therefore, family functioning is something that is related to the family's characteristics based on the wider social and cultural demands.

Similarly, Matejevica, Jovanovica and Ilic (2015) suggest that family functioning refers to a condition in which a family creates better situations for the development of healthy and mature members considering the potentials of each of these members. It can further be explained in terms of the organizational process that highlights the family's integration as a whole rather than as simple sum of the number of members emphasizing the importance of relations and interactions.

In describing family functioning, Rahmaninda and Mangunsong (2019) emphasized on the ways by which a family solves a problem and responds to challenges while leaving as a single unit or whole. They also noted that family functioning includes role functioning that represents the repetitive behaviors and contributions of each member of the family, affective responsiveness that represents the ability to respond with appropriate affection and emotion, affective involvement that represents the extent to which the family is interested in and appreciates the activities of other members and behavioral control that represents the ways by which the family applies rules to manage each member's behavior.

Ejigu and Belay (2021) emphasized that a family as a crucial unit of a society have important functions that play many roles in the development of the members. Matejevica *et al* (2015) also noted that functionality of a family is a very important condition that determines the development of healthy and mature members in terms of intellectual and many other aspects. For this reason, it has been underlined that in order to realize the basic family function, the family system must complete a series of tasks, including basic tasks (such as meeting the material needs of the individual in terms of food and clothing), developmental tasks (such as adapting and promoting the growth and development of the members) and crisis tasks (such as dealing with all kinds of family emergencies (Dai & Wang, 2015).

Similarly David (1978) notes that one of the functions of the family is to provide the necessary supports and warmth for their children's biological needs and simultaneously directing its development towards becoming an integrated person capable of living in society and maintaining and transmitting culture.

In line with this, Olson (2007), in her theory known to be Olson's circumplex model of marital and family system suggests that family functioning refers to a condition in which a family operates as a systems of supports where interactions, relations, the family rules and ways of sharing roles as well as the patterns of communications among members of the family are conducive. It can be healthy or unhealthy one whereby a healthy one results in positive developmental outcomes whereas the reverse holds true to the unhealthy one. As far as the healthy family functioning is concerned, it refers to the condition in which a family effectively copes with cultural, environmental, psychosocial, and socioeconomic life challenges and demands throughout the family life cycle (David, 1978). However, the unhealthy one is the one that fails to effectively cope with the cultural, environmental, psychosocial, socioeconomic as well as developmental demands of each of its members including the children and adolescents.

2.2.2 Patterns of family functioning

It is generally important to recognize that there are key components of family functioning that are associated with the developmental outcomes in general and development of self-regulatory skills in particular.

Therefore, when talking about family functioning, we need to understand its key components that have been identified by scholars. To this end, for instance, if we consider Olson's family function theory, we recognize that family function has three key dimension; namely, family cohesion, family adaptability and family communication. Family functioning

comprises of three concepts for understanding family functioning: cohesion, adaptability and communications (Olson, 2010).

2.2.2.1 Family cohesion

Family cohesion represents family intimacy (Dai & Wang, 2015). Cohesion refers to the emotional bonding among family members (Wakgari & Belay, 2021). Olson (2001) defines family cohesion as the nature of emotion, support, helpfulness and caring among family members.

2.2.2.2 Family flexibility/adaptability

Family adaptability deals with the family's need to change the power structure, role assignment, or the ability of family rules to cope with the external environmental pressure or the development of marriage.

Olson (2000) defined family adaptability as one of the key components of family functioning that represents changes in the family roles and rules of control and family discipline. So, this aspect of family functioning has significant impacts on the development of members of the family mainly the children and adolescents. The persuading reason for this, as Ghahvehchi-Hosseini, Shahyad and Pakdaman(2021) noted in their published study findings, is that in an adaptable family, leadership is democratic and less authoritarian; children and adolescents are made to participate in family's decision-making, and familial roles are not established based on age or gender. Similarly, Whitcher (2016) noted that a functional family is the one that establishes clear roles, rules, and hierarchies that allow members to experience individual growth and differentiation as they navigate life's challenges.

2.2.2.3 Family communication

Family communication refers to the communication between family members, which is important for the development of the first two dimensions; i.e., cohesion and flexibility (Dai & Wang, 2015). Family communication is the most complex aspect or notion of all in which families serve as the cornerstone for our lives and provide a rich forum for everything to show, from affection to conflict. So, communication is central to the family and to its functioning. This is especially true for nurturing and control. Nurturing requires communication that is central to encouraging development, including both verbal and nonverbal behaviors that are encouraging and supportive. Control requires communication that is central to guiding, influencing, and limiting the types of behaviors evidenced by family members (Beth, 2005).

2.2.2.4 Family interaction

In addition to cohesion, flexibility, and communication, there is a general aspect of family functioning (i.e., family interaction) that represents the behavioral aspect (Malik & Lindahl, 2000) involving overall family system qualities and parenting behaviors (Henry, 1994) and is therefore conceptualized here as a behavioral and tangible representation of what is going on in the family. Family interaction is determined by the quality of communication and cohesion that occurs between members of the family.

2.2.3 Family functioning and family characteristics as antecedents

Although the functionality of a family in terms of cohesion, adaptability, and communication may depend on several factors, family characteristic variables mainly structure, economic status, and size are considered here. Here, it has been confirmed that there are variations in family functioning across family structures favoring nuclear over non-nuclear families (Villarreal-Zegarra and Paz-Jesus, 2017). Similarly, it was observed in a study that two-parent families (i.e., nuclear) had higher mean scores on family cohesion compared to single-parent families whose mean score on cohesion was relatively lower (Bello *et al.*, 2017). Hence,

family structure influences the functionality of a family in the dimensions of cohesion, adaptability, and communication. Family structure had an impact on the adaptability and communication dimensions of family functioning. When it comes to a family's relative economic status, a study conducted by Wakgari and Belay (2021) shows that it had relationships with family functioning mainly cohesion and adaptability. The scholars suggested that there were significant differences in cohesion and adaptability favoring medium economic status over the lower and higher ones.

Scholars believe that poor socio-economic situations negatively impact family functioning and its dimensions. Banovcinova et al. (2014), for instance, suggested that a low economic situation disrupts the functioning of the family system. The family economic stress model also outlines that low family income creates economic stresses and pressures that affect parental and within-family relationships (Mistry *et al.*, 2008) and the family's functionality.

Nevertheless, the roles that family size has in family cohesion, adaptability and communication have not been studied as far as the researcher's reviews are concerned. Yet one thing that must be noted is that family functioning has something to do with family's resources that have further association with family size. Downey (1995), for instance, suggested that the effect of family size is well explained by the Confluence model justifying that there is a reverse relationship between family size and child outcomes.

So, family functioning has a link with family characteristics such as family size, and family structure. Al Azab (2019) as cited in Maabreh and Al-Masri, 2021) in his study that aimed to identify the effect of family characteristics on the degree of family cohesion among university students, found out that there exist a statistically significant effect of the family size variable on

family communication and the overall degree of cohesion whereby families with smaller size had better communication and cohesion. Moreover, it was found out that there was no effect of mother's age, family income, the educational level of the parents, as well as the professional status of the parents) on family communication and the overall degree of family cohesion.

2.2.4 Family functioning and parenting

Scholars point out that family functioning has much to do with parenting. So, the family integration that centers the importance of the family's interactions and patterns of relationships is very important predictors of particular patterns of parenting.

In line with this, Matejevic, Jovanovic and Lazarevic (2014) outlined that, the functional family systems create conditions for adequate parental functioning that, of course, relies on the patterns of interactions and relations. Hence, patterns of functional family required to fulfill the tasks of family in parenting and supporting individual members while providing a sense of belonging and togetherness have significant impacts on the children and adolescents' healthy functioning specifically to self-regulation.

For instance, Matejevic, Jovanovic and Lazarevic (2014) recognize that, from the systemic approach to family functioning, a functional family is the one that create conditions for the other specific conditions in the family including parenting and parental functioning. For this reason, for instance, conditions related to parenting heavily rely on the overall atmosphere of the family and patterns of its functionality. Therefore, a functional family structure needs to exist in order to fulfill the tasks of family in supporting individuation while providing a sense of belonging and togetherness.

2.2.5 Functionality of the family in families with adolescents

In dealing with the development of adolescents, it becomes very important to examine the contexts mainly the family contexts (i.e., functionality of the family) in which they live. Regarding this, Matejevic, Jovanovic & Lazarevic (2014) give some justifications that remind us to recognize two conditions. The first condition, on one hand, is the fact that families mainly parents need to maintain authority in parenting adolescents.

On the other hand, the fact that adolescents need independence and more freedom that, of course, seems to challenge the parents' efforts to maintain authority. Maabreh and Al-Masri (2020) in their study pointed out that the increasing tension between parents and their children during the stage of adolescents mainly emanate from the issues related to power struggle or conflict in areas such as chores, homework, curfew, dating, personal appearance and the like.

Maabreh and Al-Masri (2020) suggest that there are lots of changes in adolescent cognitive abilities. And it is this change that creates the interpersonal dynamic between the families and the adolescents. The authors pointed out that adolescents are able to think like adults in that they can think abstractly, their reasoning becomes multidimensional and they come up with a new epistemic framework for family discussions. As the result, they seek to be treated like adults and they want to take part in family discussions that revolve around family affairs and its decision-making therefore they may challenge the method that the family currently uses in making decisions and may inquire about the rules and reasons for these decisions. Such challenges can severely affect parents as they may interpret these challenges as their son's rejection of their values, under estimating their decisions as parents, and they may feel pain when their adolescent's sons criticize the things they say or do.

So, now it becomes important for the parents to flexibly maintain the necessary authority while respecting for the adolescent's need for freedom and independence. Hence, because adolescents need more freedom and independence and the family' role may flexibly shift from strict monitoring to promoting self-monitoring and giving autonomy along with slight follow-up, giving supports, giving directions and correcting aberrance of certain rules and norms that are, of course, socially demanded and determined too for that matter. Therefore, the question of the functionality of the family becomes more important particularly in families where there are children in this phase of life (i.e., in the adolescence stage) because a functional family, in this particular case, is the one that creates conditions for the positive development of adolescents, maintaining authority without violating the adolescents' needs for independence. Here, therefore, a functional family is the one that recognizes adolescence as a critical period in the process of personality development, to pass without any dramatically conflicts between the parents and the children and to allow the family to offer adequate support to the development and maturation.

Supporting this, it has been noted in a study conducted by Kostic *et al* (2019) that it is a unified view that families with adolescents are in a very specific life cycle phase that sets new tasks and goals before both the adolescent and their family. The family dynamics significantly changes when a child goes through the period of adolescence. Due to the stage's importance in the development of young people, adolescence is a period in which all weaknesses and failures in the family system are revealed. In case a family fails to meet the need for security and love, when there is emotional disengagement of family members or excessively rigid boundaries and the inability to establish new ones and reorganize family rules, the adolescent will show their dissent openly, turbulently or specifically through various emotional problems or specific

psychopathological symptoms. This implies that whether directly or indirectly (i.e., through the mediating roles of other variables) it might be these patterns of family functioning that are, of course, dysfunctional/unhealthy have something to do with adolescents development of self-regulatory skills.

This shows that functionality of the family should be flexible in order to address the needs of the family members that may vary across lots of variables including the developmental stages. In line with this, Place, Barker and Reynolds (2007) suggest that functional family and the successful parenting with which it is identified demands high flexibility and ability to recognize tasks which can vary on the basis of the age and the developmental phases of the members mainly the child and adolescents. Thus, for instance, the developmental and social needs of children and adolescents annoy parental norms, which can easily increase the pressure on the parenting skills. Hence, the task of maintaining a balance between the discipline of the child for some inadequate behavior and at the same time giving permission to the extent that adolescents can exercise autonomy and independence in exploring their own world become difficult and therefore needs to be flexible in a family system. It is the family's inability to be flexible in its functioning that often times results in the conflicts between the parents and the children to reach highest point when they become adolescents for the attitudes of the children differ from that of their family's or their parents' in most cases (Place *et al*, 2007)

Generally, therefore, lots of evidences reveal that it is the family characteristics and the family functioning that predicts the adolescent behavioral, emotional and/or cognitive outcomes.

Wakgari (2007) in his research conducted on a sample of 360 high school students to examine the influences of family and peers on adolescents' sexual behaviors and risk perceptions boldly

highlighted important points with crucial emphasis to the role of adolescent-family communications, the effects of family structure mainly the adverse impact of single parenting, the loose associations of adolescents' knowledge and their actual risky-taking behaviors and practices, and the supremacy of familial factors in predicting adolescents' behaviors and practices. Among the family characteristics, the impact of family structure on adolescents' behavior had gained emphasis in that single parent-families were associated with adolescents with risky behaviors. Even though self-regulation was not a discernible aim of the study, it logically makes sense to infer the unforeseen effects of adolescents' failures to regulate their behaviors. That means, adolescents involvement in undesirable behavior partly emanates from lack of self-regulatory skills for the fact that the better their level of self-regulatory skills the lower the adolescents' involvement in risk behavior. Indeed, the fact that self-regulation among adolescents have an inverse relationship with risky behavior has been pointed by Banarova & Ceresnik (2024).

Furthermore, Olson, Sprenkle and Russell (1979) suggested that one particular family factor that may be important to adolescent development is family cohesion, which can be defined as the level of support, acceptance, and connectedness in the family.

2.3 Adolescents' self-regulation

2.3.1 Meaning of self-regulation

Self-regulation can be defined as individuals' ability to adaptively regulate one's own emotions, cognition, and behavior in order to respond effectively to internal as well as various environmental demands (Ludwig, Haindl, Laufs & Rauch, 2016). Here, emotional dimension, as Eisenberg and Sulik (2012) articulated is used to manage and the when and how of manifestations of emotion related motivational and physiological states as well as the how of

emotional expressions behaviorally. On the other hand, while cognitive self-regulation refers to the decision-making related functions such as inhibition, and flexible attentional shifting (Ludwig *et al*, 2016), behavioral self-regulation represents the ability to understand and internalize rules, standards and inhibit the predominant behavioral responses that do not conform to those rules and standards or that do not fit the demands of the environment (Ludwig *et al*, 2016). So it has to be noted that the general self-regulation is composed of the three elements of self-regulation.

2.3.2 Prominence of self-regulatory skills development in adolescence

Scholars, in endorsing the statement that adolescence is a bridge that takes someone from the life of childhood to the independent adulthood life, usually indicate the importance of various coping and protective skills including the development of self-regulatory skills. Hence, it is important to contemplate the nature of the stage that gives way for understanding the critical importance of the development of self-regulation.

Cobb (2001) clearly noted that adolescence is a stage in which individuals develop adult mental process and identity. The stage encompasses the development to sexual and psychological maturing and to maintaining their independence in various aspects. It is a period of new development and excitements linked with searching, discovering and living from day-to-day to the best of one's ability in a complicated social world of new friends, new feelings and different responsibilities and expectations.

Matejevic, Jovanovic and Lazarevic (2014) suggest that adolescents are capable to logically reason; they can form principles of choice based on which they will judge their own actions and others' actions, their own mental capacity to be critics. They can clearly see many alternatives, and the parents and the family as the whole must be ready to deal with that, to

justify their own attitudes because inadequate distribution of power which characterizes childhood does not exist in adolescence any more.

Adolescents are much more prone to various challenges than any other group of a society. For example, sexual activity that appear along with puberty and the various risks they tend to take in relation to sexuality, temptations to use of drug and alcohol that might be prompted by their peers, exposures to undesirable social media and social networking sites, the challenges related to familial factors (e.g., changes in today's family structures) that they live with and many more factors require adolescents to have coping mechanisms and lots of self-regulatory skills.

Wakgari (2007) clearly prompted us that adolescence is a period that involves various changes resulting in the need for the positive supports from parents and families so that they are able to cope up and adjust to the emerging challenges. Supporting this, Lin and Yi (2017) remind us that the period involves various changes to which they are required to adjust; and therefore, family is the key institute to support adolescents adjust to the changes and challenges and keep their wellbeing.

This generally implies that promoting the development of self-regulatory skills among adolescents is much more helpful in preventing risk behaviors (Gajda, Małkowska-Szkutnik & Rodzen, 2022) as well as for their overall wellbeing. Hence, studying adolescents' self-regulation can give educators, teachers, and parents the knowledge necessary to actively support the development of self-regulatory skills in adolescence.

2.4 The relationships between patterns of family functioning and adolescents' self-regulation

The relationships that patterns of family functioning have with adolescents' behaviors arising from lack of self-regulatory skills are researched in many cases.

2.4.1 Cohesion dimensions and adolescents' self-regulation

A study conducted in Serbia to investigate correlation between patterns of family functioning, parenting style and substance abuse among two groups of adolescents (i.e., addicted and non-addicted groups) revealed that the unhealthy dimensions of family cohesion had association with undesirable behavior, i.e., the addictive conditions. For instance, it was observed that the unbalanced family cohesion (i.e., patterns of disengaged family functioning) is significantly correlated with the appearance of substance abuse among adolescents (Matejevic *et al*, 2014).

For this case, it was justified that disengaged pattern of family cohesion in the family functioning results in lack of regulatory skills that protects adolescents from unhealthy behavior (i.e., addictive behavior) for many reasons. To this effect, Matejevic *et al* (2014) suggest that disengaged family systems are characterized by lack of closeness and connectedness among family members, lack of unity, the excessive emphasis on independence, and dealing with personal issues and problems. Here, it is very important to recognize that in such families, the members will have no enough time or desire to deal with other members. They will never have interest in common decision making and problem solving implying that such families cannot create a better condition for positive development of the family members mainly the adolescents.

More importantly, in such a disengaged pattern of family functioning, there exist lack of understanding of the adolescents needs for independence and freedom and failure to assist in solving the various problems that are probably unique to the stage. In such a case, while

adolescents look for help and understanding elsewhere, there are tendencies of falling in undesirable behaviors (e.g., falling in addictions) provided that their family fails to function properly in line with the demand of these adolescents.

2.4.2 Flexibility/adaptability dimensions and adolescents' self-regulation

When it comes to the flexibility dimension of the family functioning, it was observed that the unbalanced dimensions (i.e., the rigid and the chaotic dimensions) had significant relationships with the undesirable patterns of behaviors (Matejevic *et al.*, 2014) that, of course, resulted from lack of self-regulatory skills protecting them from involving in such behaviors (Banarova & Ceresnik, 2024).

In this case, Matejevic *et al* (2014) in their study pointed out that the dysfunctional dimension of the family flexibility (i.e., the rigid dimension) that is characterized by the lack of equality in decision making, and existence of strictly defined rules that never change had a significant causal correlations with the undesirable pattern of behavior for reasons. Here, it must be noted that a family member is absolute leader and has a high degree of control over the members and the resources. Hence, in such dysfunctional family system there are no opportunities for the healthy development of adolescents. For example, if we consider the existence of strictly defined rules that characterize the rigid pattern of family functioning, it seems to violate the adolescents' desires for flexible rules that promote their needs for freedom and independence. Hence, it is such lack of family stability and flexibility that results in frustrations, failure to regulate oneself and involvements in undesirable practices like addictions.

On the other hands, unlike the rigid dimension dysfunctional patterns pertaining to chaotic family functioning had also correlation with undesirable patterns of behaviors and practices among adolescents. In line with this, Matejevic *et al* (2014) clearly underlined that the

unhealthy dimension of family flexibility (i.e., mainly the chaotic family systems) is characterized by the division of roles that are not made clear among members, roles are unclear and are often transferred from one member to another (from parents to children), decisions are made impulsively, and they are never sufficiently considered, there is a constant pursuance for change, and parents neglected their position of authority. This condition is not favorable for the positive development of adolescents and therefore results in their involvements in undesirable practices that are, of course, emanated from lack of regulatory skills (Magar, Phillips & Hosie, 2008).

Generally, in their efforts to justify the undesirable behavioral and emotional outcomes of the dysfunctional patterns of the family functioning (i.e., the disengaged aspect of family cohesion dimension and the rigid aspect of family flexibility) some scholars pointed out important justifications. Existence of excessively rigid boundaries in families results make adolescent's to show their dissent openly specifically through various emotional problems or specific psychopathological symptoms (Kostic *et al*, 2019). This emanates from some reasons. For example, primarily it must be noted that it is a unified view that families with adolescents are in a very specific life cycle phase that sets new tasks and goals. The family dynamics significantly changes when a child goes through the period of adolescence.

Due to the essential importance for the development of young people, adolescence is a period in which all weaknesses and failures in the family system are revealed. In case a family fails to meet the need for security and love, the undesirable outcome becomes apparent. This implies that whether directly or indirectly (i.e., through the mediating roles of other variables) it might be these patterns of family functioning that are, of course, dysfunctional/unhealthy have something to do with adolescents development of self-regulatory skills (Matejevic *et al.*, 2014).

2.5 Theoretical frameworks

Currie (2009) suggests that literatures on the family dynamics usually offer family-related issues based on various units of analysis such as whole family (e.g., family functioning, family quality of life), dyadic relationships (e.g., parent-parent, parent-child), or single factor (e.g., maternal states of emotions and positive parenting). For this reason, family functioning as a particular aspect of the overall dynamics has been under investigation in this research.

To this end, among all, it was thought that the Circumplex Model of marital and family systems was being chosen as a framework or blueprint that is thought to be more relevant in establishing the context of the study problem and justifying the leading questions as well as determining the design and analysis schemes. So, the model seems to generally inform this study as it covers most of the key themes.

So, the Circumplex Model of Marital and family systems has been built on the principles of family systems theory, which emphasizes the interconnectedness of family members and their behaviors. In addition, it incorporates family development theory, placing emphasis on the dynamic nature of change in families across the life cycle (Olson *et al*, 1989). The model integrates the various aspects or dimensions of family functioning including family cohesion, family adaptability and family communications (Olson, 2010).

Cohesion, as a major dimension of family functioning, refers to the emotional bonding, or closeness, among family members. Optimal functioning means achieving a balance of togetherness and separateness. Family members are connected yet separate. The hypothesis is that too much or too little cohesion will lead to problems in the long term. And, flexibility refers to the amount of change in family leadership and in relationship roles and rules. Optimal functioning involves a balance of stability and change.

Family communication is the systemic capacity for positive communication within marital or family systems, and is perceived as a facilitator that can modify levels of cohesion and flexibility (Olson *et al*, as cited in Teixeira& Pereira, 2013). And, generally in the Circumplex model of marital and family system, there exist that the various crucial elements of the family functioning have a relationships with the child and adolescent's developmental (i.e., behavioral, emotional, social, moral, and cognitive) outcomes. And, it is not difficult to understand that the self-regulatory skill development is not exceptional; meaning, it has some relationships with the family factors including family functioning.

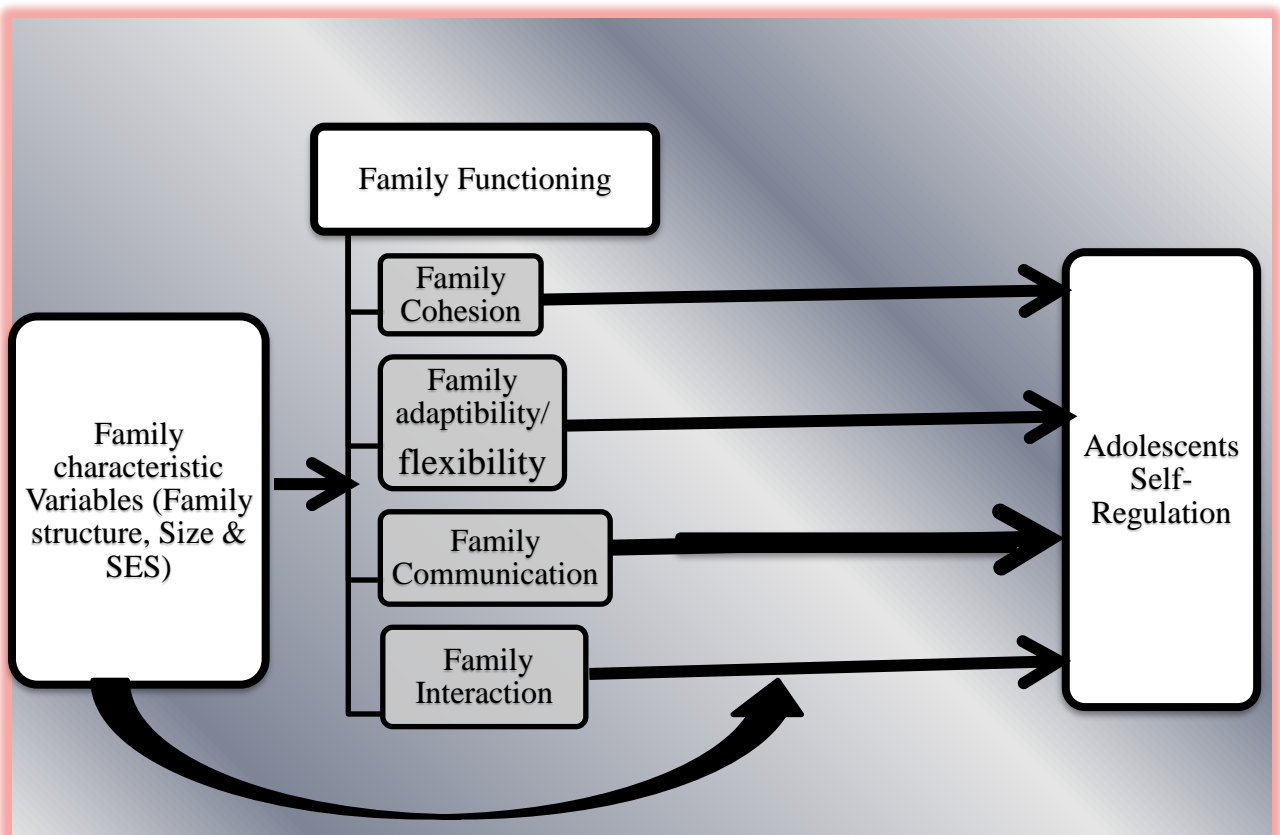
Additionally, in terms of development of self-regulation, the social-cognitive theory seems to generally inform this study as it covers this theme. Social-cognitive theory is a psychologically derived theory that explains how individuals within social systems enact multiple human processes, including the acquisition and adoption of information and knowledge focusing on processes of learning, and the interplay between multiple factors therein (Jenkins, Hall and Raeside, 2018). Hence, the fact that behavior is determined by interactions between social and cognitive factors of learning is a distinctive feature of the social-cognitive theory. Hence, the fact that self-regulation is explained by familial factors, relevantly patterns of family functioning, is informed by social-cognitive theory. Baumrind's theory of parenting and parents' behaviors in each of them as well as the child outcomes can inform this study. Therefore, generally, being informed by these theories this study is expected to base on them, bring them closer to one another, bridge them and come up with contextually relevant models, indeed.

2.6 Conceptual framework

When it comes to the conceptual model, it becomes important to recognize the major variables under considerations in this study. The main independent variables here are family cohesion, family flexibility, family communication and family interaction. And, the dependent variable is adolescents' self-regulation. In addition, while family characteristic variables are antecedents for family functioning, at the same time it moderate the relationships that exists between patterns of family functioning and adolescents' self-regulation competencies.

Figure 1

A conceptual framework depicting the relationships between components of family functioning (i.e., family cohesion, family adaptability, family communication, and overall family interaction) and adolescents' self-regulation (Source: own model)



CHAPTER THREE

3. METHODS AND PROCEDURES

3.1 Design

The study employed quantitative approach and thus the specific design that guided the overall activities was a correlational research design.

So, presently quantitative research approach along with correlational design was selected to address the research questions. Coolican (2014) suggest that one of the factors that determine the choice of a research design over the others is the goal of the research. This study attempted to determine the relationships among variables in focus (i.e., components of family functioning and adolescents' self-regulations). Hence, the study employed a correlational design that enabled the researcher to analyze the relationships among these variables.

The other rationale behind the choice of the design was the philosophical stand of the researcher. It has been suggested by scholars that deciding on a methodology and study design is guided by the research paradigm that informs the study. The design, therefore, is guided by philosophical beliefs about the nature of reality, knowledge, and values Khatri (2020) and by the theoretical framework that informs comprehension, interpretation, choice of literature and research practice on a given topic of study. It has to be, therefore, noted that the philosophical stand that will guide the overall research methodology, procedures, and design is the positivism/post-positivism paradigm whose ontological position is realism and epistemological position is objectivism taking the methodological stance of empiricism that mainly represents the quantitative approaches and designs.

Correlational research is one of the quantitative designs that enabled the researcher to examine the direction, the magnitude and the forms the relationship among the main components of family functioning (i.e., family cohesion, family adaptability, family communication, and family interaction) and adolescents' self-regulation.

3.2 Study site

The study site is one of the Southwestern Zones of Oromia Regional National State, i.e., Illu Aba Bor Zone whose main town is Mettu. Regarding the administrative divisions, the zone has thirteen districts and one administrative town. Location wise, Illu Aba Bor zone is bordered by other zones in the Regional National State (i.e., Kellem Wollega in the northwest, West Wolelga in the north, Buno Bedele in the northeast, and Jimma in the southeast) as well as other Regional States (i.e., SNNP in the south and Gambella Region in southwest). Hence, as the zone is bordered not only by other zones in the Regional State but also by two other regions, the people of the zone have much more exposures to diversified cultures.

With regard to the socio-cultural features, there exist an interesting social relationships between the families and cultural environment as whole although the scenario remains different when it comes to the within family atmosphere. In the zone, people with many different ethnicities live together. For this reason, the number of ethnically mixed marriages and interethnic families are high among communities in the zone. So, the ethnic composition of the population has become more diversified leaving big implications to research in the area of family and family functioning. Moreover, as far as the researcher's observations and experiences are concerned, families with different forms, types, and relationships exist in Illu Abba Bor zone. Afan Oromo and Amharic are the most commonly spoken language in the zone, whether in public places or in the home. In some case, one may encounter members of a family with

different preferences in terms of language usage; whereby, for instance, parents prefer only Afan Oromo but children commonly use Afan Oromo and Amharic while the reverse holds true to some homes.

Figure 2

Location/map of Illu Aba Bor Zone, Oromia, Ethiopia along with its boarders



Each of the districts in Illu Aba Bor zone has schools with different levels including pre-primary, primary and secondary schools (i.e., 9-12 grade levels). And, the zone is being chosen as the study site for some reasons. For one thing, as the zone is the most remote part of Ethiopia, it hasn't been well researched in many respects and particularly in terms of the family-related issues. Hence, the researcher becomes interested in considering the zone as a priority study site. Secondly, the researcher has better experiences with the contexts that he can easily obtain consents & cooperation from the research participants.

3.3 Participants

Secondary school adolescents attending their education in 2023 academic year are the study participants. It was thought that adolescents are the appropriate participants because of some reasons. First, it is thought that they are able to understand and properly respond to the questionnaire particularly on the family functioning compared to young children. Secondly, because they are in schools, it is not much demanding to get them in person to fill the questionnaire compared to the other portion of the population. Thirdly, adolescents are immediate beneficiaries of healthy family functioning; or else they are object of undesirable family atmosphere and therefore considering them for participation in family-related researches is very important. Finally, because the criterion variable in this study is adolescents' self-regulation, the only appropriate participant is unquestionably adolescents because self-regulatory skills are specially required at this age than in others.

3.4 Study population

The study population was students enrolled to high schools (i.e., grade 9-12) in selected districts of Illu Abba Bor Zone whose ages, of course, were between 15-20 years.

3.4.1 Sampling & sampling procedures

In this study a combined sampling procedures was used. First, the zone is considered as it is clustered by the government as administrative zone with 13 districts & an administrative town.

To familiarize readers, it is good to list the districts in the zone as Ale, Hallu, Bure, Hurumu, Yayo, Mettu District, Mettu Administrative town, Bacho, Bilo-Nopha, Didu, Nonno-Salle, Alghe-Sachi, Darimu, and Dorani Districts. To select the sample districts, stratified random sampling was used. It is thought that this sampling technique is appropriate in that the sample becomes representative of the population in respect of a characteristic, say, place of residence

(i.e., rural/urban). And this sampling is achieved by dividing the population into groups or strata representing that characteristic (Howitt & Crame, 2011).

First, these districts and an administrative town werestratified into two based on their location in terms of accessibility and remoteness. In this case, it has already been confirmed from the zone administrative authorities that the first 7 districts (i.e., 6 districts and an administrative town) were considered as accessible/urban districts. Whereas the remaining 7 districts were considered as relatively remote/rural districts as they are all located far away from the main town of the zone as well as from the main road.

Hence, using stratified random sampling, 4 districts (i.e., 2 from accessible/urban districts and 2 from remotest/rural districts) were included in the sample. Accordingly, Ale and Mettu administrative town were selected from the urban districts, Didu & Becho districts were selected from among the rural strata.

There were totally 10 high schools (Ale and Becho) had two schools each, Didu had three schools and Mettu administrative town had three government schools (Of course, a recently established school known to be Mettu Univesrity Special High School was not considered). From the ten government schools in selected districts except one school (i.e., a recently established school from Didu District) all the nine government high schools were included in the study. Hence, nine schools from the four target districts were included. And, a total of 28651 students were enrolled to high schools in all districts of the zone while the data collection. Although the total number of students enrolled to all high schools in the selected districts was nearly 8,223 during the data collection, the number of students enrolled to the nine sample schools were 7586 students (i.e., 3727 in Mettu, 2431 in Alle, 735 in Didu, and 692 in Becho District). The nine government high schools included were Mettu high school, Abdi Bori high school and Hachalu

Memorial High school (i.e., from Mettu administrative town), Gore high school and Onga high school (i.e., from Alle district), Didu high school & Gordomo high school (i.e., from Didu district), and Becho high school & Leka high school (i.e., from Becho District).

It is true that there is no clear-cut number of sample sizes. i.e., sample size varies depending on different factors including the purpose of the study and the nature of the population under scrutiny. Of course, the general truth that must always be taken into account is that the larger the sample size the better the representation will be (Cohen *et al.*, 2000).

So, scholars try to recommend different sample sizes depending on different factors. For instance, Krejcie & Morgan (1970) propose that a sample of 370 is sufficient in representing the population of 10,000. Here, the total number of students (i.e. 9 to 12 grade) in all the high schools of the districts in focus was nearly 12,928. About 400 students were targeted based on the sample size determination proposed by Krejcie & Morgan.

The other ground is the guiding principle proposed by Neuman (2007). The writer suggests that as the size of population increases, the sample size can further be reduced. For instance, while about 30% is enough to represent a population of 1000 and 10% is enough in representing a population of 10,000, a much smaller proportion (i.e., only 1%) maybe drawn out of 15,000. Based on this, as the sample size determined here (i.e., 400) accounts for more than 3% of the population, it is thought that it is fairly sufficient. Probability sampling mainly stratified based on gender and grade level was used in selecting the 400 target adolescents. Nevertheless, anticipating that there was some attrition rates (i.e., not non-response and/or missing data), the researcher decided to add 3% of the target sample (i.e., 12 participants). To this effect, in order to maximize confidence in generalizing findings, the total sample size in this study from the four District schools was maximized to 412. The total number of students that

took part in this study from each district school was determined using nearly proportional method with few researcher's judgment & decisions. Accordingly, 66, 106, 185 and 55 students participated in the study from Becho, Ale, Mettu administrative town and Didu district high schools. From 412 students, while 5 did not return the questionnaire 7 students didn't accurately complete the questionnaire; hence only 400 (i.e., 207 male and 193 female) adolescents were considered for the final analysis.

In summary, in terms of gender, while males accounted for 51.7%, females accounted for about 48.3%. Across districts, from Mettu Administrative town (n=182, 45.5%), Ale (n=101, 25.3%), Becho (n=64, 16%), and Didu districts (n=53, 13.3%) were included respectively. Grade-level wise, the proportion of school adolescents from 9th grade (n=86, 21.5%), from 10th (n=130, 32.5%), 11th (n=102, 25.5%), and 12th (n=82, 20.5%) were also determined in this study.

3.5 The study variables

In this research, family cohesion, family adaptability/ flexibility, family communication and family interaction are independent variables. In addition to these variables, demographic variables including age of the adolescent and grade level as well as familial/parental factors (e.g., family size, parents' academic levels, family structure, and relative economic status) were considered as independent variables. In this research, the adolescents' self-regulation skill was the key dependent variable of the study.

3.6 Data collection: tools/measures/

In this study, the data collection tool was questionnaire which had three main parts: part one comprises of items that capture the demographic information of the study participants; part two contains items that measure patterns of family functioning (i.e., family cohesion, family

adaptability, family communication, and overall family interaction scales), and part three comprises of items measuring adolescents' general self-regulation.

3.6.1 Measures of demographic variables

This section was designed to measure the demographic information of the target adolescents, the parents, and the family as the whole. In this part, items that seek for personal information of the adolescents (i.e., the age, gender, and grade level), parent-related data (i.e., estimated parents' ages, and education levels), and familial data (i.e., family's relative economic status, family structure, family size) were included. This part was carefully developed by the researcher based on various sources taking into account their relevance to the central themes of the study.

3.6.2 Measures of family functioning

3.6.2.1 Family cohesion scale

To measure family cohesion a self-report scale that was originally developed as part of the various versions of Family Adaptability and Cohesion Evaluation Scale (FACES) in the Circumplex Model of Marital and Family System (Olson, 2010) and latter validated and adapted to the local contexts by Wakgari & Belay (2021) was used. Hence, the scale has three sub-constructs in it; “*Enmeshed*”, “*Balanced cohesion*”, and “*Disengaged*”. So, this cohesion dimension is composed of a balanced scale, i.e., “Balanced Cohesion” and two unbalanced scales, i.e., “disengaged” and “enmeshed”.

While their earlier psychometric features mainly their reliabilities were 0.77 for the “Enmeshed”, 0.89 for the “Balanced Cohesion”, and 0.87 for the “Disengaged” (Olson, Gorall & Tiesel, 2007), the newly validated and adopted subscales, after reduction of those items with the loading values below the required cutoff point, had reliabilities 0.841 for “Enmeshed”, 0.923 for “Balanced Cohesion” and 0.934 for the “Disengaged” (Wakgari & Belay, 2021). In addition,

these authors recognized that the convergent validity of the Family Cohesion Scale shows that there was statistically significant positive correlation between the healthy dimension of family cohesion (i.e., “Balanced Cohesion”) and other scales mainly Family Communication Scale (FCS) and Family Satisfaction Scale (FSS); whereas a statistically significant negative correlations were observed between the unhealthy dimension (i.e., “Enmeshed” and “Disengaged”) and the other scales-Family Communication Scale (FCS) and Family Satisfaction Scale (FSS). Moreover, the other aspects of validities mainly the criterion related validity and content validity were found to be acceptable for each of the Family Cohesion Scales. Regarding criterion-based validity, Wakgari and Belay (2021) considered different family characteristic variables that have a theoretical support in determining the healthy status of family cohesion. For instance, family type and relative SES were among the criteria that are observed to have made variations in the dimensions of cohesion as theoretically expected. This implies that since family types and SES had some relationships and predictive roles in family functioning specifically cohesion, it can be concluded that criterion-related validity of the scale has been confirmed in one way or another. On the other hands, based on expert judgments and scrutiny of items’ loading values, the authors confirmed that the scale along with its dimensions had a good content validity. This aspect of validity was also being tested in this pilot study based on a panel of six experts; and therefore the scale’ content validity index was found to be very good. The newly validated and adopted Family Cohesion Scale has a total of 19 items rated at five point-Likert Scale (Wakgari & Belay, 2021).

3.6.2.2 *Family adaptability/flexibility scale*

Like the Family Cohesion Scale, the Family Adaptability Scale has also three sub-constructs; *chaotic, balanced flexibility/adaptability and rigid dimensions* (Olson, 2010). The

flexibility/adaptability dimension is composed of a balanced scale, i.e., “Balanced flexibility” and two unbalanced scales, i.e., “rigid” and “chaotic”.

While their earlier psychometric features mainly their coefficient alpha were 0.86 for the “Chaotic”, 0.84 for “Balanced Flexibility” and 0.82 for the “Rigid” scale (Olson, Gorall & Tiesel, 2007), the reliabilities for the newly validated and adopted subscales, after the reduction of items with a loading values less than the required cutoff point, were 0.95 for the “Chaotic”, 0.918 for the “Balanced Flexibility”, and 0.665 for the “Rigid” scale (Wakgari & Belay, 2021). These authors while determining the convergent validity of the Family adaptability/Flexibility Scale, reported a statistically significant positive correlation between the healthy dimension of the flexibility/adaptability scale (i.e., “Balanced Flexibility”) and Communication Scale and a statistically significant negative correlations between the unhealthy dimensions of the flexibility/adaptability scale (i.e., “Chaotic” and “Rigid”) and the other scales-Family Communication (FCS) and Family Satisfaction Scale (FSS). Moreover, the other aspects of validities mainly the criterion related validity and content validity were found to be acceptable for each of the Family Flexibility/Adaptability Scales. It was observed that selected criterion variables that had theoretically expected to have an association with family flexibility were observed to have made differences in the family flexibility indicating the confirmation of criterion related validity of the scale. On the other hand, critical analysis of the experts’ judgments and items’ loading values showed that the scale had a very good content validity (Wakgari & Belay, 2021). And, of course, the scale’s content validity was also being tested, based on a panel of six experts followed by examination of content validity index, to be very good in this pilot study. The newly validated and adopted Family Adaptability/ Flexibility scale has also a total of 19 items rated as five-point Likert scale (Wakgari & Belay, 2021).

3.6.2.3 *Family communication scale*

Family Communication Scale was originally developed as part of the Family Adaptability and Cohesion Evaluation Scale (FACES-IV) of the Circumplex Model of Marital and Family System as a validation scale by Olson, Gorall and Tiesel (2007) with 10 items with the initial internal consistency reliability of 0.93. However, the newly validated and adopted Family Communication Scale had a coefficient alpha reliability of 0.97. Validity of the scale was also checked to be very good. In this case, for example, the validity mainly the convergent validity of the scale was observed to be very good in that the scale had strong positive correlation with family cohesion and flexibility in the earlier validation study (Wakgari & Belay, 2021). Moreover, content validity was also checked during the pilot study to be very good. So, it is this scale that was used to measure family communication.

3.6.2.4 *Family interaction scale*

To measure family interaction, System for Coding Interactions and Family Functioning (SCIFF) that was adopted from the one validated and published by Lindahl & Malik (2000) was used. The authors suggested that SCIFF has three categories of codes; namely, whole family-level code, dyadic/marital communication, and individual (parent-child) codes. The whole family-level (father-mother-child) code has six variables or coding themes (i.e., negativity/conflict, warmth/positive affect, cohesiveness, responsibility for problems, style of interaction/parenting, and alliance). Dyadic/marital (mother-father) communication has one variable/coding theme; i.e., marital communication itself. The individual level (parents and child) code deals with parental communication and affect regulation. The parent codes are measured with four variables (i.e., Rejection/Invalidation, Emotional Support/Attunement, Coerciveness, and Withdrawal), and the child codes are measured with five variables representing the child's affective and behavioral states (i.e., Anger, Sadness, Positive

Affect, Withdrawal, and Opposition). Although the total number of items in the SCIFF were twenty-two (Lindahl & Malik, 2000), for this research only sixteen items were used while the remaining ones were omitted for the following reasons. On the one hand, the researcher would like to affirm that although the necessary procedures were passed through; the adaption process of the family interaction scale was not exempted from some limitations. Hence, during the initial phase of the adaption process, it was decided that six items that were recognized to be ambiguous and might have been thought to evoke a non-genuine response were omitted. Regarding the psychometric characteristics of the scale, Cronbach's alpha reliability was computed to be very good (i.e., 0.95). The validity mainly the content validity of the family interaction scale was checked with the help of experts in the relevant themes; content validity index (CVI) was computed based on Polit & Beck's (2006) guidelines and was found to be acceptable (i.e., 0.80). Also, concurrent validity of family interaction scale was confirmed through checking its relationship with scales measuring other constructs, i.e., with family cohesion ($r=0.69^{**}$), flexibility ($r=0.60^{**}$) & family communication ($r=0.82^{**}$) that measure the different aspects of family functioning.

3.6.3 Measure of Self-regulation

Self-regulation as a key dependent or outcome variable was measured with relevant items representing the general self-regulation of adolescents. The researcher developed this scale consisted of 26 items in a Likert format by consulting different literature, empirical works, and published scales used in similar studies. The researcher mainly consulted Miller and Brown (1991), Gross and John (2003), Wanjohi, Mwebi, and Nyang'ara (2015), and other local sources in developing the self-regulation scale. The tool was validated and was being used in this study. Regarding the psychometric characteristics of the self-regulation scale its reliability was observed to be very good (i.e., 0.94). The validities of the scale were observed to be good. For

example, the content validity of the scale was checked using content validity index (CVI) that was computed to determine the validity based on Polit & Beck's (2006) guidelines and it was computed to be 0.91. Moreover, the fact that Bartlett's test of sphericity shows significant relationships among the items in the scale and the factor analysis that shows contributions of each of the items to the self-regulation overall shows the confirmation of construct validity.

3.7 Instrument validation and adaption procedures

3.7.1 Pre-validation preparations and validation of family interaction and self-regulation scales

Here, measures of two variables, i.e., family interaction and adolescent self-regulations were validated before and during the pilot study.

Concerning family interaction scale, the primary activity was item development. As mentioned in the preceding section, items were written and collected from various sources and the English version of the draft tool consisted of sixteen items was prepared and sent to a panel of experts comprising of six experts from various fields who are supposed to have knowledge in the area to be explored.

In order to carry out the content validity on family interaction scale an informed opinion from individuals in the field of psychology were sought. While some of them were assistant professors in the field of psychology others were PhD holders and still others were PhD candidates in applied developmental psychology. These individuals were regarded as qualified experts and therefore could provide information, evidence, and judgments on whether the tool is relevant to measure what it intends to measure. These experts were made to make a judgment on the tool within the framework of the main topic of the dissertation. In doing this, a procedure that started with preparation of the tool and putting in a form that has a rating scale (i.e., 4 for highly relevant, 3 for quite relevant, 2 for not relevant and 1 for entirely not relevant) that enabled the

experts to rate each of the items in the scale based on its relevance to the construct to be measured was followed. After obtaining the data (i.e., the experts' judgments) analysis were made manually based on Polit & Beck (2006).

Translations of the tool (i.e., family interaction scale) into Afan Oromo was made with the cooperation of a professional with MA level education and Assistant Professor in Afan Oromo with English-minor, of course. He is an experienced university instructor who has had twelve years of experiences in Mettu University. The back translation to English language was made with the cooperation of a university instructor with a PhD level education in English language (Teaching English as a Foreign Language). He took Afan Oromo as a minor while he was in degree level education program and he has had an Afan Oromo background at most. He is an experienced university instructor, indeed. The researcher along with the language professional devoted times for the parallel cross-checking. Finally, it was checked that the translated English version was much equivalent to the original English version. Generally, therefore, it was recognized that there were no problem observed in relation to the translation and the procedure passed through.

Subsequently, the internal consistency was checked with Cronbach's alpha and the validity mainly the content validity of the family interaction scale was checked with the help of experts in the relevant themes. In checking the content validity, the panel of six experts was made to review the construct and items before assigning a score to each item. Then, content validity index (CVI) was computed to determine the validity based on Polit & Beck's (2006) guidelines. In addition, concurrent validity of family interaction scale was confirmed through checking its relationship with scales measuring other constructs, i.e., family cohesion, flexibility and communication that measure the different aspects of family functioning as mentioned earlier.

Generally, in adapting and using family interaction scale some systematic steps were carefully passed through being guided by some scholars' suggestions (Churchil,1979; Hinkin, 1998).

Hence, let's see the summary of the steps followed in having family interaction scale ready for use as follows.

Step 1: Identifying the domains of the construct (i.e., family interaction)
Step 2: Determining to pull or adapt relevant items from a relevant source (i.e., Malik & Lindhal, 2000)
Step 3: Initial data collection (i.e., data collection from experts) to determine the relevance of the items to the construct (i.e., family interaction) to be measured
Step 4: Refining the measure based on the initial information; translation, back-translation, and parallel cross-checking
Step 5: Data collection (i.e., pilot data for further psychometric characteristic check))
Step 6: Determining the internal consistency using Cronbach's Alpha
Step 7: Factor Analysis (i.e., for further validity check)
Step 8: Family interaction scale ready for use and replication

When it comes to self-regulation scale, initially a self-report scale with thirty-two items was developed with English language. This newly built version of self-regulation scale was translated to Afan Oromo by a language professional with the level of Assistant Professor with relevant specialization. The scale was back translated to English language by English language professional . Following this, the translated and the back translated versions were compared and revised by independent professionals in order to ensure coherence and semantic consistency.

Therefore, in order to compute the content validity for self-regulation the same procedure that was passed through in the case of family interaction scale was applied in that a panel of six experts was requested to cooperate with the researcher in offering their judgments on whether each of the items in the self-regulation could measure what they intended to measure. In this case, the experts were made to have an understating of the study topic in general and goal of the research and the ways by which self-regulation operated in the study. In this case, the experts were made to rate the relevance of each of the items to the construct under operation in the research. Then analyses took place based on Polit & Beck's (2006) guideline and decisions were made (See Appendices).

Then, the final version that got ready for use was consulted with a group of 10 adolescents to check the clarities and word-usages, relevance and understandability to build confidence on its comprehensibility and interpretability by the successive sample of adolescents. Then content validity was checked by a panel of six experts and CVI was determined on the basis of a conventional guideline (Polit & Beck, 2006) before pilot data collection. It was on this step that two items with lower CVI were omitted from the scale used for pilot data collection. On the basis of the pilot data internal consistency was determined using Cronbach's alpha reliability.

In addition to CV and reliability tests, factor analysis were carried out to determine the factor loadin values of each the items in the self-regulation. It was observed that, in the factor analysis, the loading values of each item to their respective constructs or factors have been presented with the following table.

Loading values of each item to the respective factors (construct) in the extraction of factor in self-regulation scale

Items	Loading values	Items	Loading values
1	.852	14	.862
2	.824	15	.798
3	.774	16	.751
4	.905	17	.699
5	.914	18	.654
6	.901	19	.787
7	.843	20	.867
8	.830	21	.746
9	.925	22	.698
10	.901	23	.897
11	.848	24	.680
12	.804	25	.822
13	.721	26	.825

Based on the succeeding extraction of factors that considered the initially retained twenty-six items, it was generally determined that there exists a general self-regulation scale. Each of the items on the scale had a factor loading values greater than the conventional cut-off point (>0.3).

Overall the steps in scale development Model of Churchill (1979) and that of Hinkin (1998) were used as the researcher's base. While Churchill's Model has eight steps, Hinkin's Model has about six steps. The steps followed here were systematically born out of the models. Thus, identifying the domain, generating items, initial data collection for content validity, refining the measure based on the initial data, determining the internal consistency, carrying out factor analysis and determination of construct validity and finally having a measure that has got ready to use.

Let's see the summary of the steps followed in the newly adopted scale development and validation as follows.

Step 1: Identifying the domains of the construct (i.e., of adolescent self-regulation) to be measured
Step 2: Generating items (i.e., this involves constructing and borrowing)
Step 3: Initial data collection (i.e., data collection from a panel of experts)
Step 4: Refining the measure based on the initial information
Step 5: Data collection (i.e., pilot data collection after the initial refinement)
Step 6: Determining the internal consistency
Step 7: Factor Analysis (i.e., mainly EFA for the purpose of factor extraction)
Step 8: Self-regulation scale ready for use and replication

Finally, it has to be noted that in the analysis, while PCA was used in the initial solution to refine the initial pool of items, factor analysis was used to detect the structure. And, these all were performed with the help of IBM-SPSS version 25.

3.8 Pilot study

A pilot study was carried out for purposes for instrument validation and exploring the initial findings of the set study objectives. In the pilot study, the questionnaires were administered to a sample of 210 ($M=105$, $F=105$) adolescents randomly selected from three high schools in Mettu administrative town (i.e., Mettu Secondary School, Abdi Bori Secondary School, and Hachalu Hundessa Memorial Secondary School). Here, the adolescents filled out the questionnaire in their school compound except the family interaction scale that was taken home and filled out during the family gathering time. While 192 (i.e., 91.43%) of the 210 questionnaires were considered for the analysis, the remaining 18 (i.e., about 8.57%) were omitted for poor completion.

While the pilot data on family cohesion, family adaptability, and family communication were used merely to examine their relationships with the dependent variable, i.e., adolescent self-regulation, data on overall family interaction and adolescent self-regulation were used to address double purposes of instrument validation and checking out relationship patterns.

It was determined that the content validities of family interaction scale and adolescent self-regulation scale were computed initially before the pilot data collection and therefore observed to be very good in both cases. To this end, for example, while the content validity was observed to be 0.80 for family interaction scale it was observed to be 0.91 for self-regulation scale. The pilot study also revealed data on reliability, item-total correlations, and other aspects of validities to be reasonably very good.

3.8.1 Assessment of reliability

With regard to reliability, Cronbach's alpha was computed for family interaction scale and adolescent self-regulation scale and found to be very good (i.e., 0.95 and 0.94, respectively). This implies that the scales had a very good level of internal consistency as Cronbach's alpha value ranging from 0.7 to 0.8 is considered as good and beyond as very good (Fields, 2013). In addition, it has been observed that the total item correlation for each of the items in both scales were much acceptable in most cases. Therefore, it has to be noted that in a reliability scale all items should correlate with the total, hence, an item that has a value less than 0.30 was considered as a problematic as the item doesn't correlate very well with the overall scale (Fields, 2013).

Nevertheless, even though the researcher noted that some items had relatively low correlation with the total scale, it was determined that retaining all the sixteen items for the family interaction scale becomes more appropriate. To this end, for example, there was an item that had a relatively low correlation (i.e., 0.34). However, as Cronbach's alpha reliability was computed for the whole scale to be very good (i.e., 0.95) and because such a scale (i.e., the one

with an alpha reliability >0.70) had a reasonably good level of internal consistency as suggested by (Fields, 2013), it was determined that retaining the item made more sense to the researcher. Moreover, it has to be noted that in a reliability scale all items should correlate with the total; hence, an item that has a value less than 0.3 is considered as a problematic as the item doesn't correlate very well with the overall scale (Fields, 2013). But provided that the scale's reliability is very good and because the value observed was a bit greater than 0.30, it was determined that deleting the item didn't make substantial change to the reliability of the scale tracing the importance of retaining all the sixteen items in the scale for use in the study. On the other hand, two items which had a very low item total correlations have been deleted from adolescents' self-regulation scale.

3.8.2 Factor analysis for family interaction scale

For family interaction data, preliminary assumptions such as normality, sampling adequacy, sphericity and multicollinearity were tested based on the pilot data. In this regard, it was observed that both Kolmogorov-Smirnov and Shapiro-Wilk Test shows that the distribution of data was significantly different from the normal distribution ($n=192$, $P < 0.01$) implying that the data on family interaction scale was not normally distributed putting the need for factor analysis in doubts. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, however, was computed to be 0.94 implying that the obtained data on family interaction scale fulfills the criteria required for factor analysis. This conclusion has been drawn on the basis of scholars' suggestions that usually recommend a Kaiser-Meyer-Olkin (KMO) value > 0.90 as marvelous indicating that factor analysis with the data is useful (Bian, 2018).

On the other hand, because the determinant of the R-Matrix was observed to be 3.274-E8 (i.e., 0.00000003274) which was less than the conventional cut-off point (i.e., >0.0001) again

creating doubts on whether or not the correlation matrix could be appropriate for factor analysis. So, it was generally observed that mixed results were there in that while some of the preliminary assumptions were met to perform factor analysis the other assumptions were not. Despite this, the researcher was more convinced to carry out the analysis using the principal axis factoring in the initial extraction of factors with eigenvalue greater than 1. It was observed that two clusters of variables/factors were observed to have had an eigenvalue >1 . In the analysis, the commonality, the loading values of each item and total variance explained were emphasized. The reason behind using principal axis factoring was that scholars like Howitt and Cramer (2008) suggest that, provided that the commonalities are well estimated, principal axis factoring is more preferable.

The pilot result shows that different items share different proportion of variance with the remaining ones. On the other hand, the loading values of each of the family interaction item to the family interaction scale overall were well determined. For example, while most items (i.e., twelve items) had a loading values >0.70 , only few (i.e., four) items had a loading values <0.70 .

From the pilot study, in the initial solution, principal axis factoring with oblique rotation yielded two factors with eigenvalues greater than 1 which accounted for 65.81 % of the variance. However, while the first factor accounted for the great majority of the variance (i.e., 61.65%), the succeeding factor accounted for a very small variance (i.e., 4.15%) tracing that there was one best factor that constituted the super-variable (i.e., family interaction) and the need for taking some measures (i.e., re-running the analysis after suspending an item that might have caused the second variable to appear). It was understood that there was one item that had a limitation pertinent to double loading. As the result, suspending the item from the succeeding analysis and then re-running the analysis to have a cluster of variables (or items) that constitute a super-

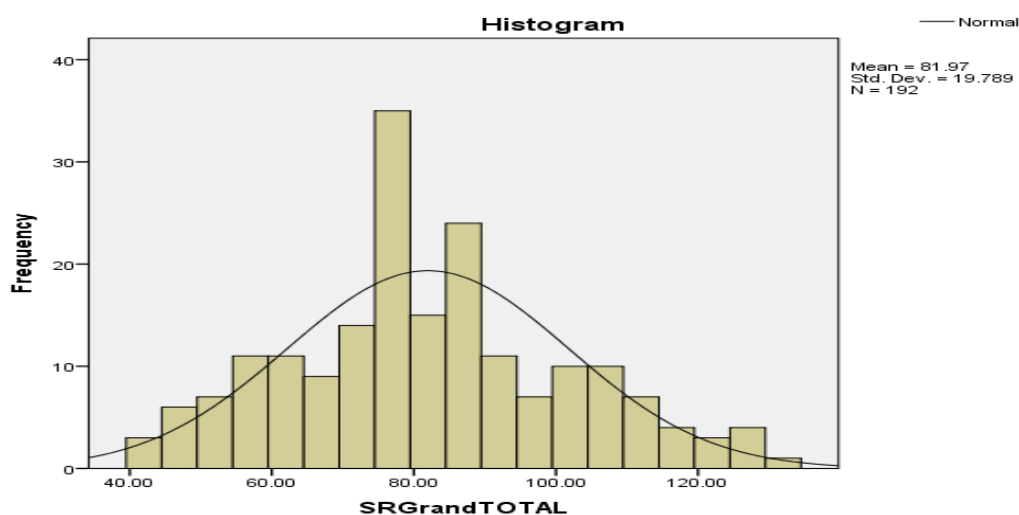
variable representing family interaction was decided. Hence, it was observed that a single factor or construct with sixteen (16) items in it and that measures family interaction appeared with 62.88% total variance to be used for the final data collection.

3.8.3 Factor analysis for self-regulation scale

Initially, to check preliminary assumptions, test of normality, sampling adequacy, sphericity and multicollinearity were performed. In the pilot study, Shapiro-Wilk test ($n=192$, $P>0.05$) shows that the data for self-regulation was normally distributed.

Figure 3

A histogram depicting normality of data distribution on self-regulation among Mettu High school adolescents, Mattu-Illu Aba Bor, Southwest Ethiopia



When it comes to sampling adequacy, the value of KMO was computed to be 0.87 implying that the data on self-regulation scale fulfills the criteria required for factor analysis. This conclusion was drawn on the basis of scholars' suggestions that a KMO value >0.5 or 0.6 as acceptable. Bian (2018) suggested that a KMO value that is >0.90 is marvelous; the one with 0.80 s is meritorious; the one with 0.70 s is just medium; and the one with < 0.60 s is not

acceptable. Moreover, Hutcheson and Sofroniou (as cited in Field 2009) provide appealing guidelines to interpret the KMO value labeling mediocre for 0.5 and 0.7, good for values between 0.7 and 0.8, very good for values between 0.8 and 0.9 and superb for values greater than 0.9. So, the KMO value observed in this study indicates that factor analysis with the data is useful.

As far as sphericity was concerned, Fields (2013) suggest that Bartlett's test tells us whether our correlation matrix is significantly different from an identity matrix. Bartlett's test of sphericity indicates that there were significant relationships among the item ($\chi^2 (435) = 7680.177; p < 0.001$). This implies that constructs or variables in the general self-regulation were related and hence suitable for structure detection. So the R-matrix was not an identity matrix and there were some relationships between the variables to be included in the analysis. Therefore, as this test was significant ($p < 0.01$), factor analysis was appropriate.

On the other hand, in this analysis, the determinants of the R-Matrix were unfortunately observed to be less than the conventional cut-off point (i.e., > 0.00001). It was $3.068 \text{ E-}9$ (i.e., 0.000000003068) creating doubts on whether or not the correlation matrix would be factorable. However, in some cases it can be considered as tolerable.

More importantly, in order to check multicollinearity variance inflation factor (VIF) was performed for each of the main predictors. Field (2009) defined variance inflation factor (VIF) as a measure of multicollinearity in regression analysis. It indicates whether a predictor has a strong linear relationship with the other predictor(s). Fields (2009) suggests that a value of 10 is a good value at which to worry. So, with $\text{VIF} > 10$ there is an indication that multicollinearity may be present; with $\text{VIF} > 100$ there is certainly multicollinearity among the variables.

So it was observed that the tolerances that, of course, measure the influence of one independent variable on all other independent variables were found to be >0.3 in all cases. A tolerance $(T) < 0.1$ represents that there might be multicollinearity in the data (Schreiber-Gregory & Bader, 2018). When it comes to variance inflation factor (VIF) that assesses how much the variance of an estimated regression coefficient increases when predictors are correlated, in this study, it was observed that it ranges from 2.93 (i.e., for family flexibility) to 3.06 (i.e., for family communication) as predictors of self-regulation. And, of course, these values seem to have been good.

Akinwande, Dikko & Samson (2015) suggest that if no factors are correlated, the variance inflation factor will all be one (1). If the variance inflation factor (VIF) is equal to one (1) there is no multicollinearity among regressors, but if the VIF is greater than 1, the regressors may be moderately correlated. A variance inflation factor between 5 and 10 indicates high correlation that may be problematic. And if the VIF goes above 10, it can be assumed that the regression coefficients are poorly estimated due to multicollinearity which should be handled accordingly.

If multicollinearity is a problem in a multiple model, that is, the variance inflation factor (VIF) for a predictor is near or above 5 (Akinwande *et al.*, 2015). This indicates that a VIF with values nearly 2-4 is good revealing that there exist optimum multicollinearity.

General speaking, because the multicollinearity was not a serious concern in this case for it can be tolerable at this level, the assumption has been fulfilled implying that the correlation matrix was factorable.

Before carrying out the factor analysis (EFA) and before determining the structure of the self-regulation scale, principal component analysis (PCA) was made to reduce the initial pool of items into a relatively manageable one. In doing this, extraction method that considered the eigenvalue and expects it to be >1 was used.

In the initial solution, principal components analysis yielded five factors with eigenvalues greater than 1 which explained about 73.67 % of the variance in the 30 variables (items). The scree plot was also used to observe the number of components/factors extracted on the basis of eigenvalue. The first few eigenvalues represent criterion that is used to decide whether or not the factors were substantially important. So, in most cases, it seems logical that one should consider those factors with an eigenvalues greater than 1. However, it was observed that the first three factors explain majority of the total variance that was 42.2%, 14.17% and 11.72% respectively; whereas the two subsequent variables/factors explain a negligible proportion of the total variance implying that the first three factors were very important in representing the self-regulation scales overall as far as this initial PCA was concerned.

It was observed that the commonality that the majority of the item had with each other in the scale was medium, high and moderately high that the items contributes to the scale in measuring the construct (i.e., self-regulation) under consideration. However, the commonalities that few items (to be specific, three items) had with the total items in the scale were very low. Therefore, it was decided that three items with lower values of commonality were omitted from the scale. Because it is generally true that high communality in the principal components represent that the extracted components represent the variables in a better manner than the lower commonality does (Bian, 2018), it was recognized that those items with lower commonality are

poor in their contribution to the scale. Moreover, it was observed that an item had double loading in that it significantly contributed to two factors; and therefore omission of the item was decided.

It was recognized that because some items had unacceptable loading values it logically made to omit them. Statistician usually recommend that a loading value <0.40 is not accepted. However, some scholars suggest that decision of the cut-off points of loading values depends on the sample size (Petal, 2016).

Therefore, the initial solution based on PCA guided the researcher to take some measures (i.e., omitting three items whose loading values were less than the required cut-off-point (i.e., <0.40), omitting an item with double-loading and ultimately retaining 26 items that measure general self-regulation along with the various dimension in it.

In the factor analysis, it was observed that three factors represented by factor I, II, and III and that explain the whole values of the variance in the general self-regulation scales were identified. Following this, reliabilities of each of the sub-constructs or factors of self-regulation scale were determined. And, of course, it was determined that factor I represents behavioral dimension of self-regulation, factor-II represents the cognitive aspect and factor III represents the emotional aspect of self-regulation. So the plot study shows that the behavioral dimension of self-regulation had eleven items with reliability of 0.96 that is interpreted to be very good in terms of internal consistency. In addition, the item-total correlations of all the items were observed to be acceptable. Moreover, in the correlated item total correlation; it was observed that one item was found to have a lower value that resulted in decisions of rejection. On the other hand, though each of the items had good contributions to the scale overall, it was determined that decisions of rejection of an item whose item total correlation was very low become necessary as it had some impacts on the scale's overall internal consistency. So, there was a clue that rejection

of this item that represents cognitive dimension of self-regulation improves the scale's reliability. The value (i.e., total item correlation) was below the accepted cutoff point that should have to be greater than 0.30 (Fields, 2013). Moreover, from the pilot result, it was recognized that rejection of another item that represents the emotional dimension of self-regulation and that had a very low item total correlation improves the reliability of the self-regulation scale overall. Finally, therefore, the investigator was able to have a scale with twenty-six (26) items measuring self-regulation among adolescents in the actual contexts.

Yet it became important to re-run factor analysis with the retained twenty-six (26) items forcing extraction of those factors with eigenvalues greater than 1 in the factor extraction options of the factor analysis. To this end, the result showed that there were three-factor that explained about 73.68% of the variance appeared. Based on the succeeding extraction of factors that considered the initially retained items, it was generally determined that there exists a general self-regulation scale that had three dimension; namely behavioral, cognitive, and emotional dimensions. More importantly, it was determined that while the behavioral dimension of self-regulation had 10 items, the cognitive and emotional self-regulation had 8 items each measuring the constructs they supposed to measure.

3.9 Data collection procedure

The data collection was carried out by the researcher and other two assistant data collectors. Before the data collection, the assistant data collectors were made to receive the necessary trainings. The adolescents filled out the questionnaire by their own with the help of the researcher and assistant data collectors in their school compound except the family interaction scale that was taken to home and filled out there because filling the scale needs observation. The

researcher briefed the research participants on the goal of the research, the nature of the questionnaire to be filled and how they were expected to fill them out.

3.10 Scoring

The items in all the measures were prepared in a five-point Likert-scale format with scale value ranging from 1-5. Each item in the scales had a maximum of 5 and a minimum of 1 point to represent the degree to which the respondents agree or disagree to a particular statement or issue in a scale.

As far as the family function pertaining to cohesion was concerned, the scale measuring this variable had nineteen items and each of the respondent's response for every item was scored on a five-point scale and therefore all the items were summed up to be in the range of 19 to 95 points. And, the same scoring procedure was applied to the family functioning pertaining to family flexibility scale. That means because the scale has a total of nineteen items the scores ranged from a minimum of nineteen to a maximum of ninety-five points.

Regarding the family communication scale, as each of the ten items was made to have 1-5 points, the scores of each respondent on all the items were summed up to fall between a minimum of ten (10) to a maximum of fifty (50). In addition, each of the sixteen items in family interaction scale was made to have 1-5 points and therefore the scores of each respondent on all the items were summed up to fall between a minimum of sixteen (16) to a maximum of eighty (80) points. Unlike other scales, coding of a particular item in a family's interaction was made with the help of coding guides/rules that were prepared to have a further specific behaviors, actions, and emotional expressions. It was based on the tendency of these specific behaviors, actions and emotional expressions that guided the coders to assign a certain value to each of the themes in System for Coding Interactions and Family Functioning (SCIFF)

When it comes to self-regulation scale, it was summarized that the scale was made to have had a total of twenty-six (26). And because each of the items in the self-regulation was made to carry a minimum of one (1) to a maximum of five (5) points, the scores of each respondent on the total items were added together to fall between a minimum of twenty-six (26) to a maximum of one-hundred-thirty (130) points.

Finally, it has to be well noted that, in all cases, while some items are positively worded and therefore directly scored, others are negatively worded that they were coded and scored reversely.

3.11 Data analysis

Pearson correlation (i.e., bivariate correlation) was employed to check the nature of relationships between the different components of family functioning and adolescent self-regulation. Moreover, multiple linear regression was used to determine the extent to which self-regulation was predicted by patterns of family functioning in an individual and combined manner. In selecting the variables for the multiple linear regression models, sound theoretical rationale and previous empirical works were consulted. Step wise regression was also computed to determine the best predictors of self-regulation. In addition to the correlation and regression, ANOVA (i.e., Multivariate ANOVA coupled by a follow-up univariate ANOVA) along with Post-hoc comparisons using Tukey HSD confidence levels was checked in some cases such as family structure and size. Let's see the summary of the research questions and the corresponding statistical analyses used in the study as follows.

Purpose	Statistical analysis
Determining level of family functioning and that of adolescents' self-regulation	Descriptive statistics were computed for each variable. In order to understand the patterns of family functioning & self-regulation the mean, standard deviation, and the minimum and the maximum scores were computed; percentile ranks were determined & interpreted.
Comparing family functioning & adolescents' self-regulation by family characteristic variables (family size, type/structure, SES)	Because the selected independent variables had all more than two categories, analysis of variance mainly MANOVA along with follow-up univariate ANOVA were computed to check the variations they made to patterns of family functioning.
Determining relationships among independent variables (family functioning components) & self-regulation	Pearson correlation (i.e., bivariate) analysis was used to determine relationships between two variables
Determining the discrete and combined contributions of the independent variables in predicting adolescents' self-regulation	Multiple linear regressions was used.
Determining if the impacts of family functioning on adolescents' self-regulation can be significantly moderated by family characteristics variables.	Mediation analysis through SEM with the help of a software package known to be JASP 0.18.1.0.

Generally, all the statistical analyses were carried out with the help of IBM Statistical Package for Social Science (SPSS) version 25. In addition, -Jeffreys's Amazing Statistics Program (JASP) version 0.18.1.0 was used.

3.12 Ethical considerations

Ethical concerns in research are something that largely address the required moral concerns and standards of professional conducts in research works that are, of course, under the control of the researcher (Neuman, 2007). With this understanding, in this research various ethical issues were taken into account throughout the processes. To this end, for instance, obtaining informed consents from the participants to participate in filling the questionnaire, administering the questionnaire on times that are more convenient to the respondents, respecting confidentiality, respecting participants' rights to privacy, enshrining anonymity, keeping oneself from deceiving the participants, respecting them and the like are few among many research ethics that were considered by the researcher.

CHAPTER FOUR

FINDINGS

This chapter presents the findings and discussion of the study. The information concerning participants' demographics, descriptive statistics about the level of the study variables, correlations between the predictor and outcome variables, regression analysis that depicts the effect of predictor variables on outcome variables, and mediation analysis are presented and followed by detailed discussion of the results.

4.1 Personal and family characteristics of the respondents

Descriptive statistics show that the age range of the respondents was 15-20 with the mean age of 17.5 with standard deviation 1.65.

When it comes to family structure, the study identified four categories of family structure, namely, nuclear families, single-parent families, extended families, and child-headed families. The majority of the respondents were from nuclear families ($n=168$, 42%) followed by adolescents from extended families ($n=148$, 37%). Still significant number of adolescents were from single-parent families ($n=79$, 19.8%) and five adolescents (1.3%) were from child-headed households.

Regarding the perceived economic status of parents, the proportion of adolescents whose family's economic status was equal to the median relative to the scores observed was 58%; and the proportion of adolescents whose family's economic status was below the median relative to the observed score was 31.5%. And, only few (10.5%) of the respondents were from families whose SES was observed to be above the median relative to the scores observed. This finding indicates that the majority of the respondents' families fall in the medium and lower income groups.

As long as the family size was concerned, it was reported that the target adolescents were from families with 2-7 members whereby adolescents who were from those families whose sizes were four, five, six, and seven were 27.3%, 24.5%, 20.8%, and 15.0%, respectively. The proportions of adolescents from households with family size two and three were 2.5% and 10% respectively. The mean family size was 4.96 with standard deviation 1.31.

4.2 Nature of family functioning patterns & adolescents' self-regulation

The following table presents the minimum and maximum scores, the mean and standard deviations, as well as the percentiles, and their corresponding scores on the various patterns of family functioning (i.e., family cohesion, flexibility, communication, and overall family interactions) and the adolescents' self-regulations.

Table 1: Descriptive statistics showing the nature of family functioning and adolescents' self-regulation in Ilu Aba Bor Zone, Oromia, Ethiopia

Family functioning & SR	Min.	Max.	Mean	Std. Dev.	Percentile and corresponding scores					
					5	10	25	50	75	90
Cohesion	43.00	78.00	63.02	11.91	45.00	45.00	48.00	70.00	72.00	74.00
Flexibility	41.00	74.00	60.71	11.13	44.00	45.00	48.00	68.00	70.00	71.00
Communication	23.00	47.00	32.51	6.19	24.00	25.00	28.00	31.00	38.00	42.00

Interaction	29.00	75.00	43.46	13.55	32.00	34.00	35.00	38.00	42.75	71.00
Self-regulation	42.00	124.00	82.00	19.18	50.00	56.00	70.00	80.00	95.00	109.9

(N=400)

As depicted in table 1, the mean, standard deviation, and the minimum and the maximum scores of the cohesion dimension of family functioning were 63, 11.91, 43, and 78 respectively. The mean score of the family cohesion falls in the percentile rank of 25 and 50 implying that the families participated in this study had generally moderate level of family cohesion. This interpretation was given based on Olson's (2010) guideline presented in the Family Adaptability and Cohesion Evaluation Scale (FACES-IV) manual whereby a percentile rank for cohesion dimension that falls between 36 to 65 represents a moderately cohesive family while the one that falls between 65-85 represents a highly cohesive family.

When it comes to the flexibility aspect, it was generally determined that the mean score along with the minimum and maximum scores fall in the percentile rank of 25-50 again showing that the families almost fall in a moderately flexible level. The mean score for family communication falls nearly in the percentile rank of 25th to 50th implying that the families in the study area had almost moderate level of communications as interpretation made on the basis of Olson's (2010) guideline. Moreover, in family interaction the mean score falls in the percentile rank of 75; generally representing a moderately high interaction in the families. Lastly, the mean score for adolescent self-regulation reveal a moderately high self-regulation among adolescents (*see Table 1*).

4.3 Patterns of family functioning in families with different characteristics

In this sub-section, the results of the study related to variations in the patterns of family functioning (i.e., variations in family functioning pertaining to cohesion, flexibility, communication and interaction) across family characteristic variables mainly family size, family

structure or types, and perceived economic status computed with MANOVA and follow up ANOVA are carefully presented.

4.3.1 Patterns of family functioning (i.e., cohesion, adaptability/flexibility, communication, and interaction) across family's perceived economic status

The following table presents the results of MANOVA that shows whether there is statistically significant difference in the patterns of family functioning of adolescents coming from different income groups.

Table 2

Preliminary test statistics (MANOVA) on variations in patterns of family functioning across family's perceived SES relative to the scores observed

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.968	2953.456 ^b	4.0	394.0	.000
	Wilks' Lambda	.032	2953.456 ^b	4.0	394.0	.000
	Hotelling's Trace	29.98	2953.456 ^b	4.0	394.0	.000
	Roy's Largest Root	29.98	2953.456 ^b	4.0	394.0	.000
Family's relative economic status	Pillai's Trace	.061	3.087	8.0	790.0	.002
	Wilks' Lambda	.940	3.120 ^b	8.0	788.0	.002
	Hotelling's Trace	.064	3.153	8.0	786.0	.002
	Roy's Largest Root	.061	6.063 ^c	4.0	395.0	.000

As can be observed from Table 2 above, it was generally observed from the preliminary analysis of MANOVA that a family's relative economic status had statistically significant impacts on all dimensions of family functioning with significant F-ratio on the majority of the possible test statistics, *including* Wilks' Lambda ($F_{(8, 788)} = 3.12, p < 0.05$).

This implies that there were differences in the composite of the four dependent variables (i.e., family cohesion, flexibility, communication, and interaction) related to the variable (i.e., family's economic status) under consideration, indicating that there was a need to perform a follow-up univariate ANOVA because it was believed that computing a follow-up univariate ANOVA was necessary just to have a picture of the existing trends in the variation of the dependent variable across the independent variable in focus. Therefore the following table depicts the univariate ANOVA results on whether or not there were statistically significant variations in the individual patterns of family functioning as the function of the relative economic status.

Table 3

Tests of between-subject effects (i.e., of family economic status on family cohesion, flexibility, communications, and interaction)

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared/ η^2
Intercept	Family Cohesion	974130.665	1	974130.66	6856.427	.000	.945
	Family Flexibility	902571.529	1	902571.53	7289.827	.000	.948
	Family communication	247727.360	1	247727.36	6824.891	.000	.945
	Family Interaction	435526.923	1	435526.92	2457.187	.000	.861
Family's relative economic status	Family Cohesion	235.917	2	117.96	.830	.437	.004
	Family Flexibility	229.228	2	114.61	.926	.397	.005
	Family communication	869.831	2	434.91	11.982	.000	.057
	Family Interaction	2940.481	2	1470.24	8.295	.000	.040
Error	Family Cohesion	56403.993	397	142.07			
	Family Flexibility	49153.550	397	123.81			
	Family communication	14410.159	397	36.298			
	Family Interaction	70366.709	397	177.246			
Total	Family Cohesion	1644996.000	400				
	Family Flexibility	1523543.000	400				
	Family communication	437910.000	400				
	Family Interaction	828642.000	400				
Corrected Total	Family Cohesion	56639.910	399				
	Family Flexibility	49382.778	399				
	Family communication	15279.990	399				
	Family Interaction	73307.190	399				

a. *R Squared* = .004 (*Adjusted R Squared* = -.001)

b. *R Squared* = .005 (*Adjusted R Squared* = .000)

c. *R Squared* = .057 (*Adjusted R Squared* = .052)

d. *R Squared* = .040 (*Adjusted R Squared* = .035)

As can be observed with Table 3 above while there were no statistically significant variations in family cohesion ($F_{(2,397)} = 0.83, p = 0.437$) and family flexibility ($F_{(2,397)} = 0.926, p = 0.397, \eta^2 = 0.005$) as the function of family's economic status, statistically significant differences in family communication ($F_{(2,397)} = 11.982, p < 0.01, \eta^2 = 0.057$) and overall family interaction ($F_{(2,397)} = 8.29, p < 0.01, \eta^2 = 0.040$) were observed as the function of family's economic status. And the proportion of multivariate variance (i.e., eta squared/ η^2) of family cohesion, flexibility, communication, family interaction that were associated with the family's economic status were 0.4%, 0.5%, 5.7%, and 4.0% respectively.

4.3.2 Patterns of family functioning (i.e., cohesion, adaptability/flexibility, communication, and interaction) across family structure

With the following table the preliminary test statistics in MANOVA was performed to see variations on the composite of the four dependent variables (i.e., family cohesion, flexibility, communication, interaction) in association to the independent variable (i.e., family structure) under consideration.

Table 4

Preliminary test statistics (MANOVA) on variations in patterns of family functioning across family structure

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.961	2434.809 ^b	4.000	393.000	.000
	Wilks' Lambda	.039	2434.809 ^b	4.000	393.000	.000
	Hotelling's Trace	24.782	2434.809 ^b	4.000	393.000	.000
	Roy's Largest Root	24.782	2434.809 ^b	4.000	393.000	.000
Family structure	Pillai's Trace	.817	36.948	12.000	1185.000	.000
	Wilks' Lambda	.268	55.936	12.000	1040.072	.000
	Hotelling's Trace	2.419	78.963	12.000	1175.000	.000
	Roy's Largest Root	2.282	225.365 ^c	4.000	395.000	.000

To this effect, Table 4 above shows that all the possible test statistics were observed to be significant (Wilks' Lambda $F_{(12, 1040)} = 55.94, p < 0.01$) indicating that the individual independent variables should be subjected to follow-up univariate ANOVA as shown below.

Table 5

Tests of between-subject effects (i.e., of family structure on family cohesion, flexibility, communications, and interaction)

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
Intercept	Family Cohesion	286083.316	1	286083.316	4768.113	.000	.923
	Family Flexibility	257881.407	1	257881.407	4307.909	.000	.916
	Family communication	71304.405	1	71304.405	2884.325	.000	.879
	Family Interaction	116848.537	1	116848.537	927.378	.000	.701
Family structure	Family Cohesion	32880.198	3	10960.066	182.670	.000	.581
	Family Flexibility	25677.298	3	8559.099	142.980	.000	.520
	Family communication	5490.337	3	1830.112	74.030	.000	.359
	Family Interaction	23411.665	3	7803.888	61.936	.000	.319
Error	Family Cohesion	23759.712	396	59.999			
	Family Flexibility	23705.480	396	59.862			
	Family communication	9789.653	396	24.721			
	Family Interaction	49895.525	396	125.99			
Total	Family Cohesion	1644996.000	400				
	Family Flexibility	1523543.000	400				
	Family communication	437910.000	400				
	Family Interaction	828642.000	400				
Corrected Total	Family Cohesion	56639.910	399				
	Family Flexibility	49382.778	399				
	Family communication	15279.990	399				
	Family Interaction	73307.190	399				

a. R Squared = .064 (Adjusted R Squared = .059) c. R Squared = .100 (Adjusted R Squared = .095)

b. R Squared = .056 (Adjusted R Squared = .052) d. R Squared = .131 (Adjusted R Squared = .127)

The univariate ANOVA displayed with Table 5 above shows that there were statistically significant variations in all the patterns of family functioning as the function of variations in the family structure. Hence, there were statistically significant variations in family cohesion ($F_{(3, 396)} = 182.67, p < 0.01, \eta^2 = 0.581$), family flexibility ($F_{(3, 396)} = 142.98, p < 0.01, \eta^2 = 0.52$), family communication ($F_{(3, 396)} = 74.03, \eta^2 = 0.359$), and overall family interaction ($F_{(3, 396)} = 61.94, p < 0.01, \eta^2 = 0.319$). More importantly, it was observed with table that the proportion of multivariate variance (i.e., eta squared value/ η^2) of family cohesion, flexibility, communication, and family

interaction that were associated with the family structure were 58.1%, 52%, 35.9%, and 31.9% respectively revealing the importance of family structure to the variation in all the patterns of family functioning. In addition to the above MANOVA and follow-up univariate ANOVA, it was thought that it good to have an overview of the post-hoc results showing where the differences were. Let's see the following post-hoc tests.

Table 6

Post-hoc test of multiple mean comparisons on the role of family structure on patterns of family functioning (i.e., cohesion, flexibility, communication, and interaction)

	(I) Family structure	(J) Family structure	Mean D/ce (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower B.	Upper B.
Family cohesion	Single parent-homes	Extended	-15.7674*	1.07930	.000	-18.5519	-12.9828
		Nuclear	-24.4788*	1.05670	.000	-27.2050	-21.7525
		Others/child-headed/ families	-27.4430*	3.57202	.000	-36.6588	-18.2273
	Extended	Single parent-homes	15.7674*	1.07930	.000	12.9828	18.5519
		Nuclear	-8.7114*	.87323	.000	-10.9643	-6.4585
		Others/child-headed/families	-11.6757*	3.52211	.006	-20.7626	-2.5887
	Nuclear	Single parent-homes	24.4788*	1.05670	.000	21.7525	27.2050
		Extended	8.7114*	.87323	.000	6.4585	10.9643
		Others/child-headed/ families	-2.9643	3.51525	.834	-12.0335	6.1050
Others (child-headed) families	Single parent-homes	27.4430*	3.57202	.000	18.2273	36.6588	
	Extended	11.6757*	3.52211	.006	2.5887	20.7626	
	Nuclear	2.9643	3.51525	.834	-6.1050	12.0335	
Family flexibility	Single parent-homes	Extended	-13.15412*	1.078066	.000	-15.93550	-10.37274
		Nuclear	-21.67970*	1.055497	.000	-24.40286	-18.95655
		Others/child-headed/ families	-20.31899*	3.567943	.000	-29.52418	-11.11379
	Extended	Single parent-homes	13.15412*	1.078066	.000	10.37274	15.93550
		Nuclear	-8.52558*	.872238	.000	-10.77593	-6.27523
		Others/child-headed/ families	-7.16486	3.518087	.176	-16.24143	1.91170
	Nuclear	Single parent-homes	21.67970*	1.055497	.000	18.95655	24.40286
		Extended	8.52558*	.872238	.000	6.27523	10.77593
		Others/child-headed/ families	1.36071	3.511237	.980	-7.69818	10.41961
Others (child-headed) families	Single parent-homes	20.31899*	3.567943	.000	11.11379	29.52418	
	Extended	7.16486	3.518087	.176	-1.91170	16.24143	
	Nuclear	-1.36071	3.511237	.980	-10.41961	7.69818	
Family communication	Single parent-homes	Extended	-1.7249	.69279	.063	-3.5122	.0625
		Nuclear	-8.5579*	.67829	.000	-10.3078	-6.8079
		Others/child-headed/families	-3.5722	2.29286	.404	-9.4877	2.3434
	Extended	Single parent-homes	1.7249	.69279	.063	-.0625	3.5122
		Nuclear	-6.8330*	.56052	.000	-8.2791	-5.3869
		Others/child-headed/families	-1.8473	2.26082	.846	-7.6802	3.9856
	Nuclear	Single parent-homes	8.5579*	.67829	.000	6.8079	10.3078
		Extended	6.8330*	.56052	.000	5.3869	8.2791
		Others/child-headed/ families	4.9857	2.25642	.122	-.8358	10.8072
Others (child-headed) families	Single parent-homes	3.5722	2.29286	.404	-2.3434	9.4877	
	Extended	1.8473	2.26082	.846	-3.9856	7.6802	
	Nuclear	-4.9857	2.25642	.122	-10.8072	.8358	
F	Single parent-homes	Extended	-2.2969	1.56405	.458	-6.3321	1.7383

homes	Nuclear	-16.8992*	1.53131	.000	-20.8499	-12.9484
	Others/child-headed/ families	-1.1063	5.17636	.997	-14.4612	12.2485
Extended	Single parent-homes	2.2969	1.56405	.458	-1.7383	6.3321
	Nuclear	-14.6023*	1.26544	.000	-17.8671	-11.3375
Nuclear	Others/child-headed/ families	1.1905	5.10403	.996	-11.9777	14.3588
	Single parent-homes	16.8992*	1.53131	.000	12.9484	20.8499
	Extended	14.6023*	1.26544	.000	11.3375	17.8671
Others (child-headed) families	Others/child-headed/ families	15.7929*	5.09409	.011	2.6502	28.9355
	Single parent-homes	1.1063	5.17636	.997	-12.2485	14.4612
	Extended	-1.1905	5.10403	.996	-14.3588	11.9777
	Nuclear	-15.7929*	5.09409	.011	-28.9355	-2.6502

As can be observed in Table 6 above, it was observed through Turkey's HSD post-hoc test of multiple mean comparisons that, in the cohesion dimension, when nuclear families were compared to single-parent homes and extended families the mean differences were positive and statistically significant ($p < 0.01$). When single-parent families were compared to nuclear families, the difference was negative and statistically significant ($P < 0.01$), implying that better family cohesion was associated more with nuclear families, followed by extended families, and then with single-parent families. In the flexibility dimension too when nuclear family was compared to the other two family structures the mean difference was positive and statistically significant ($p < 0.01$). On the other hands when single-parent homes were compared to extended families the difference was negative but not statistically significant. So, when nuclear families were compared to both single-parent homes and extended families, the mean differences were positive in both cases, implying that nuclear families had a high mean score in family flexibility, whereas extended families or single-parent homes did not. Overall, in both cases (i.e., in family functioning pertinent to cohesion and flexibility) single-parent homes had the dysfunctional kind of family than the nuclear and the extended once.

As far as a pattern of family functioning pertinent to communication was concerned, when nuclear families were compared to all the remaining family structures, i.e., single-parent homes, extended families, and child-headed homes, the mean differences were positive and statistically

significant too ($p < 0.05$). This implies that more positive communication characterizes nuclear families than it does for the remaining ones. In the case of overall family interaction, when nuclear families were compared to single-parent homes, extended, and child-headed homes, the mean differences were also positive and statistically significant ($p < 0.05$) implying that nuclear families were more characterized by better family interactions than single-parent homes, extended families and child-headed ones.

4.3.3 Patterns of family functioning (i.e., cohesion, adaptability/flexibility, communication, and interaction) across family size

The follow-up univariate ANOVA summary table was drawn out from preliminary analysis of MANOVA to determine whether or not there were statistically significant variations in the patterns of family functioning (i.e., family cohesion, flexibility, communication and interaction) as the function of family size that was categorized based on median split methods.

Table 7

Preliminary test statistics on variations in patterns of family functioning across family size

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.969	3084.697 ^b	4.000	391.000	.000
	Wilks' Lambda	.031	3084.697 ^b	4.000	391.000	.000
	Hotelling's Trace	31.557	3084.697 ^b	4.000	391.000	.000
	Roy's Largest Root	31.557	3084.697 ^b	4.000	391.000	.000
Family Size	Pillai's Trace	.421	9.265	20.000	1576.000	.000
	Wilks' Lambda	.608	10.502	20.000	1297.750	.000
	Hotelling's Trace	.598	11.647	20.000	1558.000	.000
	Roy's Largest Root	.511	40.297 ^c	5.000	394.000	.000

Multivariate analysis of variance (MANOVA) showed in Table 7 above that family size had significant impacts on all patterns of family functioning with significant F-ratio on all

the possible test statistics (*Wilks' Lambda* $F_{(20, 1297)}=10.50, p<0.01$). In other words, the result generally showed that there were differences on the composite of the four dependent variables (i.e., family cohesion, flexibility, communication and interaction) related to the independent variable (i.e., family size) under consideration. This result led the individual dependent variables to be subject to a follow-up univariate ANOVA in order to assess whether the four dependent variables (i.e., family cohesion, flexibility, communication and interaction) showed similar trends in their variations across family size.

Table 8

Tests of between-subject effects (i.e., of family size on family cohesion, flexibility, communications, & interaction)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Family Cohesion	822921.940	1	822921.940	6020.075	.000	.939
	Family Flexibility	752688.384	1	752688.384	6486.657	.000	.943
	Family communication	220486.060	1	220486.060	8036.227	.000	.953
	Family Interaction	396311.533	1	396311.533	3020.659	.000	.885
Family size	Family Cohesion	2781.567	5	556.313	4.070	.001	.049
	Family Flexibility	3664.432	5	732.886	6.316	.000	.074
	Family communication	4470.003	5	894.001	32.584	.000	.293
	Family Interaction	21614.250	5	4322.850	32.948	.000	.295
Error	Family Cohesion	53858.343	394	136.696			
	Family Flexibility	45718.346	394	116.036			
	Family communication	10809.987	394	27.437			
	Family Interaction	51692.940	394	131.200			
Total	Family Cohesion	1644996.000	400				
	Family Flexibility	1523543.000	400				
	Family communication	437910.000	400				
	Family Interaction	828642.000	400				
Corrected Total	Family Cohesion	56639.910	399				
	Family Flexibility	49382.778	399				
	Family communication	15279.990	399				
	Family Interaction	73307.190	399				

a. R Squared = .043 (Adjusted R Squared = .031)

b. R Squared = .065 (Adjusted R Squared = .053)

c. R Squared = .276 (Adjusted R Squared = .267)

d. R Squared = .315 (Adjusted R Squared = .306)

The follow-up univariate ANOVA (shown in table 8 above) indicated that all the variables were significantly different for families with different sizes: $F(5,394) = 4.07, P < 0.05, \eta^2 = 0.049$; $F(5, 394) = 6.32, p < 0.05, \eta^2 = 0.074$; $F(5, 394) = 32.58, p < 0.01, \eta^2 = 0.293$, and $F(5,394) = 32.95, p < 0.05, \eta^2 = 0.295$ respectively. Eta-squared (η^2) values showed that the proportion of multivariate variance of cohesion, flexibility, communication & interaction that were associated with family size differences was 4.9%, .4%, 29.3%, and 29.5% whereby the effect of family size took prominence on family interaction and family communication than it was for the patterns of family functioning pertinent to cohesion and flexibility. This implies that family size is an important determinant of the functionality of a family in different dimensions.

Table 9: Post-hoc test of multiple mean comparisons on the role of family size on patterns of family functioning (i.e., cohesion, flexibility, communication, and interaction)

Dependent Variable	(I) Family size/level	(J) Family size/level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Family cohesion	Small (≤ 4 members)	Medium (5 members)	.7538	1.56	.880	-2.9200	4.4276
		Large (> 5 members)	2.1339	1.45	.308	-1.2880	5.5559
	Medium (5 members)	Small (≤ 4 members)	-.7538	1.56	.880	-4.4276	2.9200
		Large (> 5 members)	1.3802	1.42	.596	-1.9647	4.7251
Family flexibility	Large (> 5 members)	Small (≤ 4 members)	-2.1339	1.45	.308	-5.5559	1.2880
		Medium (5 members)	-1.3802	1.42	.596	-4.7251	1.9647
	Small (≤ 4 members)	Medium (5 members)	-.78557	1.45	.850	-4.18846	2.61733
		Large (> 5 members)	2.85233	1.35	.088	-.31729	6.02195
Family communication	Medium (5 members)	Small (≤ 4 members)	.78557	1.45	.850	-2.61733	4.18846
		Large (> 5 members)	3.63790*	1.32	.017	.53964	6.73616
	Large (> 5 members)	Small (≤ 4 members)	-2.85233	1.35	.088	-6.02195	.31729
		Medium (5 members)	-3.63790*	1.32	.017	-6.73616	-.53964
Family interaction	Small (≤ 4 members)	Medium (5 members)	-.8284	.79	.550	-2.6950	1.0383
		Large (> 5 members)	2.2563*	.74	.007	.5176	3.9950
	Medium (5 members)	Small (≤ 4 members)	.8284	.79	.550	-1.0383	2.6950
		Large (> 5 members)	3.0847*	.72	.000	1.3851	4.7842
Family interaction	Large (> 5 members)	Small (≤ 4 members)	-2.2563*	.74	.007	-3.9950	-.5176
		Medium (5 members)	-3.0847*	.72	.000	-4.7842	-1.3851
	Small (≤ 4 members)	Medium (5 members)	-.1820	1.71	.994	-4.2076	3.8437
		Large (> 5 members)	7.5536*	1.59	.000	3.8039	11.3033
Medium (5 members)	Small (≤ 4 members)	.1820	1.71	.994	-3.8437	4.2076	
	Large (> 5 members)	7.7355*	1.56	.000	4.0702	11.4008	
Large (> 5 members)	Small (≤ 4 members)	-7.5536*	1.59	.000	-11.3033	-3.8039	
	Medium (5 members)	-7.7355*	1.56	.000	-11.4008	-4.0702	

Based on observed means.

The error term is Mean Square (Error) = 170.315.

*. The mean difference is significant at the .05 level.

As can be observed in Table 9 above, it was observed through Turkey's HSD post-hoc test of multiple mean comparisons that, in the cohesion dimension, when small-sized families were compared to medium and large-sized families small-sized families seem to have had better cohesiveness in that the mean differences were positive; however these mean differences were not statistically significant in all cases ($p > 0.05$). In the family functioning pertinent to flexibility dimension, when medium-sized families were compared to large-sized families the mean differences were positive and statistically significant ($p < 0.05$) implying that medium-sized families had better flexibility. Again when medium-sized families are compared to small-sized ones the mean difference was positive but not statistically significant ($p < 0.05$). This shows that medium-sized families were more characterized by better flexibility than the smaller or the large-sized families did.

When it comes to communication aspect of family functioning, the findings shows that the mean difference between small-sized and large sized families were positive and statistically significant ($p < 0.05$) favoring small-sized families over the larger one. The mean difference between medium-sized and large sized families was positive and statistically significant ($p < 0.05$) favoring the medium sized families. The mean difference between medium-sized and small-sized families was positive but not significant. Hence, the result generally showed that better and positive family communication appeared to characterize medium-sized families and small-sized families than it did for the large-sized families. The same trend held true to family interaction in that the mean difference between medium sized and large sized families was positive and statistically significant ($p < 0.01$) favoring the medium-sized homes. The mean difference in family interaction between small-sized families and large sized families was also positive and statistically significant ($p < 0.01$) favoring small-sized families over the larger one. The result

generally showed that better family interaction appeared to characterize medium and small-sized families than it did for the large-sized families.

4.4 The relationships among the major variables of the study

Under this sub-section, Pearson's correlations were computed to determine the direction and magnitudes of relationships between selected variables including family size, family's perceived economic status relative to the scores observed, family cohesion, family flexibility, family communication, family interaction and adolescents' self-regulations.

Table 10

Bivariate correlation matrix showing inter-correlation among selected variables of the study

	FSZ	FSTR	FES	FCoh	FFX	FC	FI	SR
Family size (FSZ)	1							
Family structure (FSTR)	-.271**	1						
Family Economic status(FES)	-.117*	.072	1					
Family Cohesion (FCoh)	-.157**	.744**	-.002	1				
Family Flexibility (FFX)	-.196**	.704**	-.017	.812**	1			
Family communication/FC)	-.438**	.545**	.011	.354**	.306**	1		
Family Interaction (FI)	-.367**	.489**	.037	.340**	.268**	.800**	1	
Self-regulation (SR)	-.462**	.598**	.105*	.356**	.332**	.884**	.721**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

As can be observed from Table 10 above family size had statistically negative correlation with all the variables included ($p < 0.05$). It had negative & statistically significant correlation with family structure ($r = -0.271$, $p < 0.01$), family economic status ($r = -0.117$, $p < 0.05$), family cohesion ($r = -0.157$, $p < 0.01$), family flexibility ($r = -0.196$, $p < 0.01$), family communication ($r = -0.438$, $p < 0.01$), family interaction ($r = -0.367$, $p < 0.01$), and self-regulation ($r = -0.462$, $p < 0.01$).

This shows that family size had an inverse relationship with all the patterns of family functioning and adolescent outcomes (i.e., self-regulation).

On the other hands, family cohesion had strong positive correlation with all the other patterns of family functioning such as family flexibility ($r=.812^{**}$, $p<0.01$), family communication ($r=.354^{**}$, $p<0.01$), family interaction ($r=.340^{**}$, $p<0.01$). More importantly, the relationships that all the patterns of family functioning had with adolescents' self-regulation were statistically positive and significant. To this end, the relationship that family cohesion had with adolescents' self-regulations ($r=.356^{**}$, $p<0.01$), the one that family flexibility had with self-regulation ($r=.332^{**}$, $P< 0.01$), the one that family interaction had with self-regulation ($r=.721^{**}$, $p<0.01$), and the one that family communication had with adolescents' self-regulation ($r=.884^{**}$, $p<0.01$) were statistically significant. Of course among these all patterns of family functioning family interaction and family communication took the prominence roles than the cohesion and flexibility dimensions.

4.5 Predictive contributions of family functioning patterns (cohesion, flexibility, communication & interaction) to the variations in self-regulations

In order to determine the predictive contributions of family functioning patterns (i.e., of family cohesion, flexibility, communication and interaction) multiple regressions were computed. For this purpose, some of the key preliminary assumptions were observed to be met. For instance, assumption of absence of multicollinearity was tested using different criterion mainly tolerance and variance inflation factors (VIF).

Table 11***Tolerance and variance inflation factor (VIF) for regressors (i.e., cohesion, flexibility, communication and interaction)***

Model	Collinearity Statistics	
	Tolerance	VIF
Family cohesion	.325	3.081
Family flexibility	.339	2.948
Family communication	.351	2.848
Family interaction	.355	2.814

a. Dependent Variable: Self-regulation, Durbin Watso=1.514

Table 11 reveals that the tolerances that, of course, measure the influence of one independent variable on all other independent variables were found to be >0.3 in all cases. A tolerance (T) < 0.1 represents that there might be multicollinearity in the data (Schreiber-Gregory & Bader, 2018). When it comes to variance inflation factor (VIF) that assesses how much the variance of an estimated regression coefficient increases when predictors are correlated, in this study, it was observed that it ranges from 2.814 (i.e., for family interaction) to 3.081 (i.e., for family cohesion) as predictors of self-regulation. And, of course, these values seem to have been good.

Scholars suggest that if no factors are correlated, the variance inflation factor will all be 1. If the variance inflation factor (VIF) is equal to 1 there is no multicollinearity among regressors, but if the VIF is greater than 1, the regressors may be moderately correlated. A variance inflation factor between 5 and 10 indicates high correlation that may be problematic. And if the VIF goes above 10, it can be assumed that the regression coefficients are poorly estimated due to multicollinearity which should be handled accordingly.

If multicollinearity is a problem in a multiple model, that is, the variance inflation factor (VIF) for a predictor is near or above 5 (Akinwande, Dikko & Samson, 2015). This indicates that a VIF with values nearly 2-4 is good revealing that there exist optimum multicollineality.

In addition, assumption of absence of autocorrelation was checked using Durbin-Watson's test and found to be 1.514 tracing that autocorrelation was not a problem implying that the assumption of equality of variances was met to continue the regression analysis.

Attempts were made to determine the individual contribution of each predictor variable and the composite contribution of all together to the variations in the adolescent self-regulation. To this effect, the discrete or individual contribution of the predictors was presented as follows.

4.5.1 Individual contribution of each predictor to the variation in self-regulation

Under this sub-topic the discrete or individual contributions of the patterns of family functioning (i.e., family cohesion, family flexibility, family communication and family interaction) are separately presented with linear regression model one by one as follows.

In this study, attempts were made to initially determine the individual contribution of each of the patterns of family functioning to the variation in adolescent self-regulation. For this purpose, separate model fits were determined with the help of linear regression. The following table portrays the regression model that shows the individual contribution of the four independent variable to the variability in self-regulation among the target adolescents.

Table 12

A regression model showing the separate/individual contributions of the predictor variables to the variation in self-regulation

Predictors (Family functioning patterns)	Model	Sum of Squares	df	Mean Square	F	Sig.
Family communication	Regression	114860.345	1	114860.345	1430.25	.000
	Residual	31962.652	398	80.308		
	Total	146822.997	399			
Family Cohesion	Regression	18645.051	1	18645.051	57.89	.000
	Residual	128177.946	398	322.055		
	Total	146822.997	399			
Family Flexibility	Regression	16222.923	1	16222.923	49.44	.000
	Residual	130600.075	398	328.141		
	Total	146822.997	399			
Family interaction	Regression	76293.713	1	76293.713	430.529	.000
	Residual	70529.284	398	177.209		
	Total	146822.997	399			

The individual models separately computed for each of the independent variables in Table 12 show that family communication ($F_{(1,399)}=1430.25$, $p<0.01$), cohesion ($F_{(1,399)}=57.89$, $p<0.01$), flexibility ($F_{(1,399)}=49.44$, $p<0.01$), and interaction ($F_{(1,399)}=430.53$, $p<0.01$) have a statistically significant contributions to the prediction of self-regulation. Moreover, the contribution that communication has to the variation in self-regulation surpasses that of the remaining predictors.

4.5.2 Step-wise/heirarchical regression models determining the best predictors

There was a need to determine the independents variables that best predict adolescents' self-regulation among the patterns of family functioning. Thus, to determine few of the variables putting aside those regressors that may decrease the precision of the estimated coefficients and predicted values, there was a need to carry out a stepwise/hierarchical regression presented as follows.

So, from the following table of coefficients, two models are developed through stepwise regression whereby Model 1 explains family communication as the best predictor, and Model 2 that explains family communication and family flexibility/adaptability as the best predictors altogether.

Table 13

Stepwise regression coefficients for the best predictors of adolescents' self-regulations

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-7.117	2.399		-2.967	.003
	Family Communication	2.742	.072	.884	37.819	.000
2	(Constant)	-12.128	2.982		-4.067	.000
	Family Communication	2.677	.076	.864	35.452	.000
	Family Flexibility	.117	.042	.068	2.786	.006

a. Dependent Variable: Self-regulation

Based on Model 1 the standardized coefficients for communication ($\beta=0.884$, $p<0.05$) is significant explaining that from all the predictors entered the model, family communication is the best factor to self-regulations. In Model 2, the standardized coefficients for family communication ($\beta =0.864$, $p<0.01$) and family adaptability ($\beta =0.068$, $p<0.05$) are significant explaining that family communication and family adaptability are the best factors to variations in self-regulations.

Table 14

A stepwise regression models' ANOVA summary table showing the predictors contributions to variations in self-regulations

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	114860.345	1	114860.345	1430.245	.000b
	Residual	31962.652	398	80.308		
	Total	146822.997	399			
2	Regression	115473.434	2	57736.717	731.158	.000c
	Residual	31349.563	397	78.966		
	Total	146822.997	399			

a. Dependent Variable: Self-regulation

b. Predictors: (Constant), Family communication

c. Predictors: (Constant), Family communication, Family flexibility/adaptability

Model 1, $R=0.884$, $R^2=0.782$, $Adjusted\ R^2=0.782$, $Std.\ Error\ of\ the\ Estimate=8.96148$

Model 2, $R=0.887$, $R^2=0.786$, $Adjusted\ R^2=0.785$, $Std.\ Error\ of\ the\ Estimate=8.88629$

The stepwise regression model (i.e., Model 1) in Table 14 shows that family communication accounts for 78.2 % of the variance in adolescent self-regulation, with the variable significant predicting self-regulation ($F_{(1,399)}=1430.245$, $p<0.01$). Regression Model 2 shows that both family communication and family adaptability account for about 78.6% of the variations in adolescents' self-regulations with the variables significantly predicting self-regulation ($F_{(1,399)}=731.158$, $p<0.01$). As conclude, Model 2 is the best model fits to the data under analysis than Model 1 because both variables in combined accounted for the great proportion of the variability in the dependent variable.

Even though all the four variables initially appeared as predictors of adolescents' self-regulation, when separate stepwise model fit was computed, only two of them (i.e., family

communication and family adaptability/flexibility) in combination significantly predicted the outcome variable; i.e., adolescents' self-regulation.

4.5.3 Combined contribution of all predictors to the variation in the self-regulation

It was observed from the regression model in Table 16 below that the squared R (R^2) was observed to be 0.79 implying that the four predictors (i.e., family cohesion, family adaptability/flexibility, family communication and family interaction) accounted for about 79% of the variance in adolescents' self-regulation.

Table 15

Regression model showing combined contributions of family cohesion, flexibility, communication and interactions to the variations in adolescent Self-regulation

Model		Sum of squares	Df	Mean Square	F	Sig.
1	Regression	115546.499	4	28886.63	364.82	.000
	Residual	31276.499	395	79.18		
	Total	146822.997	399			

a. Dependent Variable: Self-regulation

b. Predictors: (Constant), Family cohesion, flexibility, communication and interaction

Model overall: R=0.88, R²=0.79, Adjusted R²=0.78, Std. Error of the Estimate=8.89

Of course, in this case, nearly 21% of the variation in adolescent self-regulation accounted for by some variables other than the variables included in the model.

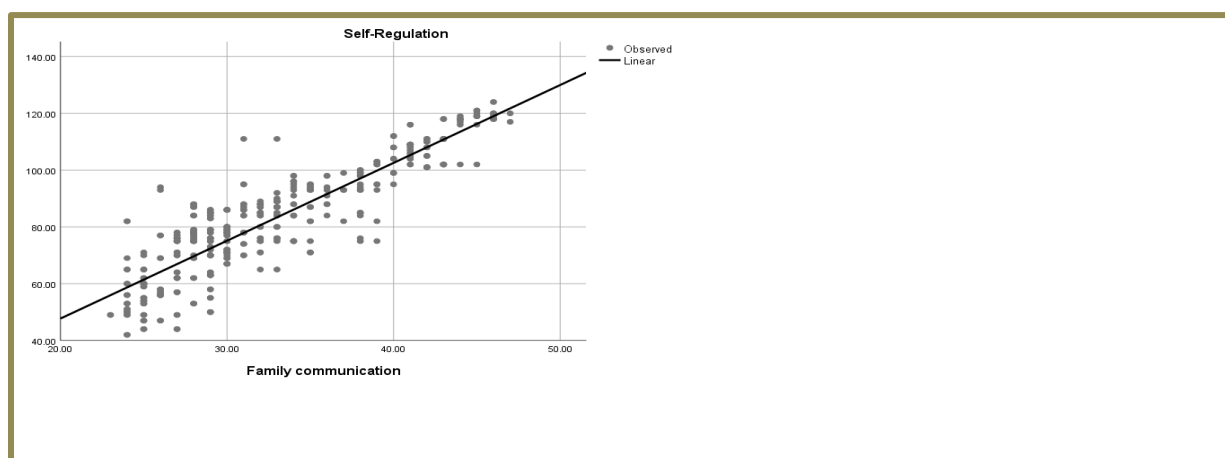
As long as the F-statistics was concerned, it was observed that the regression model overall significantly predicted ($F_{(4, 395)} = 364.82, P < 0.01$) the adolescent self-regulation.

4.6 The key role of family communication in predicting self-regulation

It was observed that among all patterns of family functioning family communication had a major role in that it plays a great role not only in predicting the adolescent self-regulation but also in maintaining and keeping the family's functionality in terms of cohesiveness and flexibility.

Figure 5

A scatterplot depicting the predictive role of family communication to the variations in self-regulation.



The above plot was sketched based on regression analysis that particularly used curve estimation option to emphasize the direction and magnitude of the predictor-predicted relationships between family communication and adolescent self-regulation. Hence, it was observed that family communication had strong positive relationship with adolescents' self-regulation with strong predictive contribution, of course.

With the following regression coefficient, therefore, the great role of family communication as a predictor can clearly be understood.

significant and positive changes in self-regulation were brought about by family communication followed by family flexibility. Nevertheless, as shown with table 18 below, the relationship that family cohesion had with adolescent self-regulation ($p < 0.01$) as well as the one that family interaction had with self-regulation ($p < 0.01$) becomes significant after controlling the family communication from the regression model implying that family communication plays a mainstay role in the relationships observed. Earlier, matrix of Pearson's bivariate correlation between family communication and family interaction was computed to be statistically significant ($r = 0.80$, $p < 0.01$). Here it has to be noted that for the assumption of absence of multicollinearity to be met, the Pearson's correlation coefficient should be less than 0.80. Yet, the value observed (i.e., 0.80) doesn't show violation of the assumption of multicollinearity. It is also important to consider the bootstrap for the regression coefficients of self-regulation with family functioning patterns for the confirmation of the nature of relationships.

Table 17

Bootstrap for regression coefficients of self-regulation versus patterns of family functioning (cohesion, flexibility, communication and interaction)

Model	B	Bootstrap				
		Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
					Lower	Upper
1 (Constant)	-11.242	-.007	.216	.001	-11.659	-10.780
Family cohesion	-.028	.000	.003	.001	-.033	-.022
Family flexibility	.139	.000	.004	.001	.132	.146
Family communication	2.597	.000	.007	.001	2.583	2.610
Family interaction	.050	7.291E-5	.002	.001	.046	.054

a. Unless otherwise noted, bootstrap results are based on 1000 stratified bootstrap samples

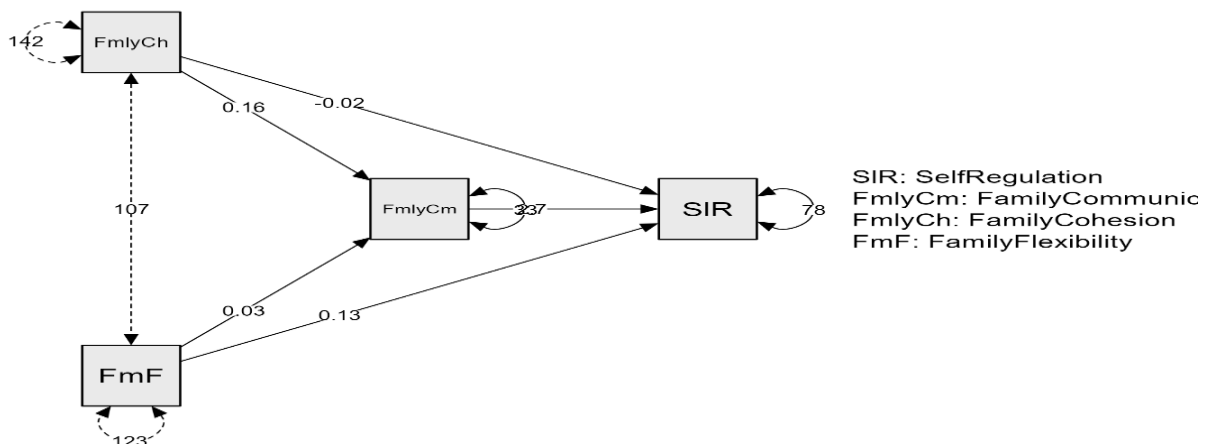
The bootstrap coefficient (with confidence interval of 2.58 to 2.61) indicated that among all family communication best predicts adolescent self-regulation. The bootstrap coefficients for family flexibility and family interaction also indicate that they had predictive roles. Because, the bootstrap confidence interval tells us that the population value for the predictors shouldn't include zero in order to confirm that there are positive relationships. So, the bootstrap confidence interval shows that there were statistically significant relationship between family communication and self-regulation.

4.7 The mediating roles of family communication in the relationship between cohesion, flexibility and interaction and self-regulation

The fact that among all the patterns of family functioning family communication plays a crucial role has been determined so far. More importantly family communication mediates in the relationships between family cohesion, flexibility, and interaction and self-regulation.

Figure 6

A Path plot depicting mediation of family communication in the relationships between patterns of family functioning (cohesion, flexibility, and interaction) and self-regulation



The crucial role of family communication in promoting the remaining patterns of family functioning such as family cohesion, family flexibility and family interaction and its further impacts on adolescent self-regulatory skill development has been presented with the following table.

Table 18

The mediating effect of family communication between cohesion, flexibility, & interaction and self-regulation

										95% Confidence Interval	
										Lower	Upper
						Estimate	Std. Error	z-value	p		
Direct effect	Cohesion	→	→	→	SR	-0.028	0.065	-0.429	0.668	-0.156	0.100
	Flexibility	→	→	→	SR	0.139	0.068	2.031	0.042	0.005	0.273
	Interaction	→	→	→	SR	0.050	0.055	0.909	0.363	-0.058	0.157
Indirect effect	Cohesion	→	FC	→	SR	0.044	0.070	0.626	0.531	-0.094	0.181
	Flexibility	→	FC	→	SR	0.106	0.073	1.447	0.148	-0.038	0.250
	Interaction	→	FC	→	SR	0.912	0.056	16.137	< .001	0.801	1.022

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Mediation analysis examines the extent to which family communication explain the effect of cohesion, flexibility and interaction on adolescent self-regulation. In order to determine this SEM was computed with the help of a software application known to be JASP 0.18.1.0 which is a free and open-source statistical software program for statistical analysis.

The above Table (Table 18) presents the direct effect of cohesion, flexibility and interaction on self-regulation. More importantly, the indirect effect of these variables via family communication has been presented. In this analysis an effect can be a significant effect if its

95% confidence interval bootstrap did not include zero. In other words, to be considered a significant effect zero does not falls within the 95% confidence interval.

So, as can be observed above after controlling the effect of family communication family flexibility had statistically significant effects on adolescents' self-regulations although others were not. More importantly, the indirect effect of family interaction ($p < 0.01$, CI95: 0.801, 1.022) via family communication was statistically significant.

4.8 The moderating roles of family characteristic variables in the relationships between patterns of family functioning & self-regulation

Under this sub-topic the standard direct effects of patterns of family functioning and the indirect effects they had via family characteristic variables such as family size, family economic status, and family structure are presented. The standard total effect has also presented here under. This moderation analysis was performed using JASP o.18.1.0

Table 19

The standard direct effect of patterns of family functioning on self-regulation

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Cohesion	→	SR	-0.158	0.065	-2.415	0.016	-0.286	-0.030
Flexibility	→	SR	0.012	0.066	0.176	0.860	-0.119	0.142
Communication	→	SR	2.333	0.120	19.454	< .001	2.098	2.568
Interaction	→	SR	0.015	0.051	0.303	0.762	-0.085	0.115

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

SR-self-regulation

Table 19 above shows that family cohesion ($p < 0.01$, CI_{95} : -0.286, -0.030) and family communication ($p < 0.01$, CI_{95} : 2.098, 2.568) had statistically significant direct effects on the adolescents' self-regulation. However, the flexibility and interaction dimensions didn't show statistically direct effects on self-regulation in this SEM implying that the analysis of their indirect effects becomes inevitable to see the statistical significance. Thus, the following table shows the standard indirect effect of patterns of family functioning (i.e., cohesion, flexibility, communication and overall interaction) on self-regulation via the mediating roles of family characteristic variables such as family size, family structure and family economic level.

Table 20

The mediating roles of family characteristic variables in the relationships between patterns of family functioning and self-regulation

							95% Confidence Interval			
							p	Lower	Upper	
				Estimate	Std. Error	z-value				
Cohesion	→	FSZ	→	SR	-0.017	0.011	-1.599	0.110	-0.039	0.004
Cohesion	→	FST	→	SR	0.145	0.030	4.782	< .001	0.086	0.205
Cohesion	→	FES	→	SR	0.002	0.010	0.219	0.827	-0.017	0.022
Flexibility	→	FSZ	→	SR	0.023	0.012	1.864	0.062	-0.001	0.047
Flexibility	→	FST	→	SR	0.109	0.026	4.129	< .001	0.057	0.161
Flexibility	→	FES	→	SR	-0.005	0.011	-0.454	0.650	-0.026	0.016
Communication	→	FSZ	→	SR	0.088	0.034	2.605	0.009	0.022	0.154
Communication	→	FST	→	SR	0.186	0.046	4.051	< .001	0.096	0.276
Communication	→	FES	→	SR	-0.010	0.019	-0.525	0.600	-0.047	0.027
Interaction	→	FSZ	→	SR	0.006	0.008	0.745	0.456	-0.010	0.022
Interaction	→	FST	→	SR	0.021	0.016	1.319	0.187	-0.010	0.051
Interaction	→	FES	→	SR	0.008	0.009	0.884	0.377	-0.009	0.025

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.
FST-family structure, FSZ-Family size, FES-family economic status

As can be observed in Table 20 above, while in most cases there existed indirect significant effects, the indirect effects were not statistically significant in some cases. To this effect, in the cohesion aspect of family functioning while its indirect effect via family structure was observed

to be statistically significant ($p < 0.01$, CI_{95} : 0.086, 0.205), its indirect effect via family size and family economic levels were not statistically significant. This implies that while family structure (i.e., nuclear, extended, single-parent homes, and child-headed families) mediates the effect of family cohesion on self-regulation, the remaining family characteristic variables (i.e., family size and economic situation) didn't play such a mediatizing or moderating roles. The same trend held true to the flexibility aspect of family functioning in that it had an indirect effect on adolescent self-regulation via family structure ($p < 0.01$, CI_{95} : 0.057, 0.161); whereas the remaining family characteristics were not observed to play such a mediating effects in the relationships under scrutiny.

When it comes to family communication, it was observed that there were statistically significant indirect effects via family structure ($p < 0.01$, CI_{95} : 0.096, 0.276). However, such indirect effect was not observed through family's economic status. This implies that while the effect of family communication on adolescents' self-regulation was mediated by family size and family structure family economic status didn't have such a mediating role in the relationship under consideration. In family interaction the mediating roles of family characteristic variables were not observed to be statistically significant.

Generally, therefore the conceptual model initially sketched in this study is observed to be partially confirmed in that two of the family characteristic variables (i.e., family size and family structure) had a mediating roles in the relationships between patterns of family functioning and adolescent self-regulation.

Table 21***The standard total effect of patterns of family functioning on self-regulation***

						95% Confidence Interval	
						Lower	Upper
		Estimate	Std. Error	z-value	p		
Family Cohesion	→ SR	-0.028	0.065	-0.429	0.668	-0.156	0.100
Family Flexibility	→ SR	0.139	0.068	2.031	0.042	0.005	0.273
Family Communication	→ SR	2.597	0.121	21.514	< .001	2.361	2.834
Family Interaction	→ SR	0.050	0.055	0.909	0.363	-0.058	0.157

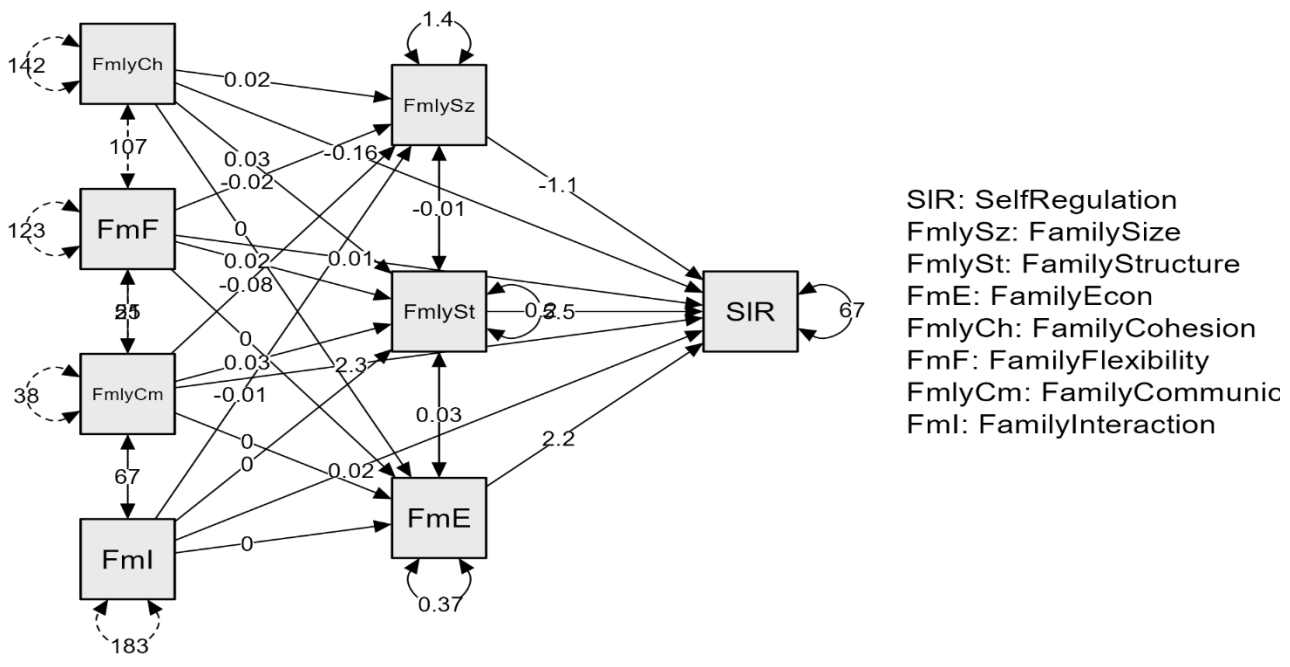
Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

The standard total effects of family functioning patterns on adolescent self-regulation were tested to be statistically significant in at least two cases; i.e., family flexibility ($p < 0.01$, CI_{95} : 0.005, 0.273) and family communication ($p < 0.01$, CI_{95} : 2.361, 2.834) (*See Table 21*).

Finally, we can consider the following path plot path plot depicting mediation of family characteristic variables (i.e., family structure, family size and family economic level) in the relationships between patterns of family functioning pertinent cohesion, flexibility, communication and interaction and self-regulation

Figure 7

A Path plot depicting mediation of family characteristic variables in the relationships between patterns of family functioning pertinent cohesion, flexibility, communication and interaction and self-regulation.



The path plot reveal that while family structure and family size had moderating roles in most relationships between patterns of family functioning and adolescent self-regualtion, family economic status didn't show such a significant mediating roles.

CHAPTER FIVE

DISCUSSION

5.1 Overviews

This study was aimed at investigating the relationship between patterns of family functioning (i.e., family cohesion, flexibility, communication and overall family interaction) and adolescents' self-regulations Competencies in Illu Aba Bor Zone, Oromia, Ethiopia. Family functioning refers to a condition in which a family creates better situations for the development of healthy and mature members whereby the potentials of each of these family members are valued (Matejevica *et al.*, 2015) and that can be explained in terms of cohesion, flexibility, communication (Olson, 2011), and behavioral interaction, of course. Self-regulation refers to individuals' abilities to regulate and control their behaviors, emotions, and thoughts in a way that enables them to attain their personal goals. It, therefore, represents one's ability to inhibit an emerging tendency toward undesirable behavior and postpone immediate gratifications for the latter betterment in various aspects (Gajda *et al.*, 2022).

Within the framework of the broad objective set, the study examined a number of specific investigative inquiries. To this end effect, the study was started with examining the psychometric properties of the various patterns of family functioning mainly family cohesion, family flexibility and family communication. Then the nature of family functioning patterns (i.e., family cohesion, family adaptability, family communication, and family interactions) and adolescents' self-regulation in the study context, variations in the patterns of family functioning (i.e., family cohesion, family flexibility, family communication, and family interaction) across selected family characteristic variables (i.e., across family size, family structure and family economic

status), and the individual and combined predictive contributions of patterns of family functioning to the variations in self-regulations among adolescents have also been scrutinized. In addition the mediating or moderating effects of family characteristic variables (i.e., family size, family structure, and family economic status) in the relationships between patterns of family functioning and adolescent self-regulation has been examined.

Ultimately, depending on literatures, empirical evidences, and these findings, the possible intervention strategies that enable us improve or enhance patterns of family functioning such as family interaction, communication, cohesion and adaptability have been examined, suggested, and published (Wakgari, Daniel, & Belay, 2023).

5.2 Family Characteristic Variables (Structure, Size & SES) in Illu Aba Bor Zone, Oromia, Ethiopia

For this research the questionnaires were administered to a sample of four-hundred adolescents selected from high schools of four districts in Illu Aba Bor zone and analyzed with the help of various statistical packages. As the result, various empirical outputs out of which strong conclusions were drawn have been observed.

It was observed, for instance, that four categories of families were determined in terms of structure; namely, nuclear families, extended families, single-parent homes, and others mainly child-headed families whereby majority fall in the nuclear families followed by extended and single-parent homes. It was observed that, whether it was men-only-headed or women-headed, the proportion of single-parent home that is relevant to family functioning (Wakgari & Belay, 2021) accounted for nearly one-fifth. This proportion was, of course, less than the proportion of women-headed households reported by the Ethiopian Central Statistical Agency (2016).

Therefore, as far as the within-family-level variable pertinent to family structure is concerned, some scholars argue that in the earlier decades, with the transformation of social

values and norms, family structures became highly varied (Bianchi & Casper, 2000). Hence, it became important to scrutinize how families were structured or configured in a variety of ways (Wakgari and Daniel, 2025), including nuclear (i.e., two-parent families where both parents are married and living together), single-parent families (i.e., those consisting of an individual parent who may never have been married or is currently divorced), child-headed families, or blended families (i.e., those consisting of previously divorced but now remarried parent couples) (Lin *et al.*, 2019). The simple category of families in terms of their arrangements or structure consists of nuclear, single-parent families and extended families in many contexts Wakgari & Belay (2021). In this case, however, because structure may vary from time to time and it varies too across contexts, the fourth category (child-headed family) appeared in Illu Aba Bor Zone, Oromia, Ethiopia.

Regarding the perceived economic status of the families, while majority fall in the middle and low economic level, negligible proportion fall in the well-to-do families in the study context. Families were observed to have had a minimum of two to a maximum of seven members with a mean size of the families was 4.96. Family size, here, represents the household size representing the total number of members. It is true that we have a natural tendency to categorize and classify things in our context as this simplifies our thinking, makes it easier to understand the variable as instances of a type, and makes it easier to describe it to others (Decoster et al., 2021). To this end, median split method that represents artificial categorization was used to categorize the families in terms of the number of members whereby the families with members above the median was large-sized and those below the median was small sized and the median is the middle number in sorted list of number of the family members. Hence, since the average number of the family members was five, those families with less than or equal to four

were relatively small sized and those above five falls in the large-sized categories. On the other hands, the Ethiopian demographic and health survey enabled us to relatively define the large, medium and small sized house holds in this research context. The finding in terms of the family size, therefore, was consistent with the Ethiopia Demographic and Health Survey that found out the Ethiopian average family size to be 4.6 (Central Statistical Agency, 2016).

Moreover, in a quasi-experimental family intervention study conducted in Mettu-Illu Aba Bor by Wakgari, Daniel, and Belay (2023), the target families were found to have had three to seven members revealing that the findings are almost consistent in this regard. An attempt made to change the continuous family size in to categorical one to determine the categories of families as large family (those that had > 5 members), medium family (those that had 5 members) and relatively small family (those that had ≤ 4 four members) reveals that the proportion of target adolescents from large and medium family size surpasses those from small-sized families respectively. And, of course, this family size had an implication to family functioning, indeed (Wakgari *et al.*, 2023).

5.3 Nature of family functioning in Illu Aba Bor Zone, Oromia, Ethiopia

It is generally believed that family functioning is all about how families function and interact in a goal-directed and dynamic manner (Garst *et al.*, 2013). For this reason, as suggested by Wakgari *et al* (2023) it has long been believed that family functioning, including the nature of communication and overall interaction has a paramount importance. Hence, the writers believe that in order to achieve the necessary family outcomes that have a direct link with their child outcomes, it is recommended that we need to shift our attention and efforts toward dealing with the families.

With this understandings in mind the nature and patterns of family functioning in Illu Aba Boze zone, Oromia, Ethiopia has been examined in this study. As result it was determined that in the family functioning pertinent to cohesion, flexibility, and communication dimensions because the mean score falls in the percentile rank of twenty-five and fifty the families in the study context had generally moderate level of family functioning as far as the Olson's (2010) guideline for such an interpretation was concerned. Regarding the pattern of family functioning pertinent to interaction because the mean score fall in the percentile rank of seventy-five, the families in the study area had almost better level of interaction. Along with the patterns of family functioning an attempt was made to determine the level of the outcome variable (i.e., adolescent self-regulation). Hence, the mean score for adolescent self-regulation that was about eighty-two fall in the percentile rank of fifty to seventy-five.

5.4 Family functioning in families with different characteristics

Even though the functionality of a family, mainly in terms of cohesion, adaptability, communication, and interaction may depend on several factors, in this study, family characteristic variables mainly family size, family structure, and economic status have been emphasized. It is obvious that the proportion of families that fall into various patterns of cohesion, flexibility, communication, and interaction was examined. It was generally observed that in all the patterns of family functioning, the families had a moderate and moderately high level of functionality.

Regarding the variations in patterns of family functioning across various levels of family characteristic variables, the study showed that there were variations in the composite of all the patterns of family functioning (i.e., family cohesion, flexibility, communication, and interaction) in association with family structures. When it specifically comes to the role of family structure,

there were significant variations in family cohesion, family flexibility, family communication, and family interaction as a function of variations in family characteristic variable pertinent to family structure. Thus, the proportion of multivariate variance of family cohesion, flexibility, communication, and interaction about family structure showed that the variable had a crucial contribution to all the patterns of family functioning.

So, it was generally determined that high family cohesion, positive communication, higher level of flexibility, and overall interactions were the features of nuclear families than they were for the remaining others (Wakgari and Daniel, 2025), such as single-parent, extended and others like child-headed homes in Illu Aba Bor zone. It can be concluded that this finding goes in line with many other empirical evidences in that nuclear families are associated with relatively healthy family functioning (i.e., mainly in terms of cohesion and communication) than those families that are headed by single parents or that are extended (Bello *et al.*, 2017).

It has also been confirmed in the relevant literature that there are variations in family functioning across family structures favoring nuclear over non-nuclear families (Villarreal-Zegarra & Pas-Jesus, 2017). It was observed, for example, in an empirical study that two-parent families (i.e., nuclear families) had higher mean scores on family functioning, mainly family cohesion, compared to single-parent families, whose mean score on this family functioning pattern was relatively lower (Bello *et al.*, 2017). It was further elaborated in the study that in nuclear families, the presence of both or at least one of the parents was related to higher levels of emotional or affective bonding that facilitate healthy functionality like cohesiveness and positive family communications. Hence, the family structure, types, or composition had an influence on the functionality of a family in various dimensions (Dai & Wang, 2015).

When it comes to patterns of family functioning (i.e., cohesion, adaptability or flexibility, communication, and interaction) across family size, it was observed that family size had substantial roles in regulating the functionality of a family in various aspects. Thus, it was recognized that there were differences in the composite of the different patterns of family functioning (i.e., family cohesion, flexibility, communication, and family interaction) related to the family size under consideration.

This implies that all the patterns of family functioning considered (i.e., family cohesion, flexibility, communication, and interaction) were significantly different for families with different sizes (i.e., for families with different numbers of members that, of course, ranged from a minimum of two to a maximum of seven in the study context). More importantly, the multivariate eta-squared values showed that the proportion of multivariate variance for family cohesion, flexibility, family communication, and overall family interaction that were associated with family size differences were substantially good. It was determined that the effect of family size took prominence on family interaction and family communication than it was for the patterns of family functioning pertinent to cohesion and flexibility. This implies that family size is an important determinant of the functionality of a family in different dimensions. A study conducted in an African country seems to support these findings in that it justifies that family size is an important variable determining the healthy of a family. It was explained, in the study, that a family size of five including parents is considered sizeable, medium or average. Such a family can cater for the needs of its members; therefore, its family is likely to enjoy the comfort of life with the choice to afford and enjoy identifiable luxuries of life (Azumah, Adjei & Nachinaab, 2017).

Overall, while relatively smaller or medium sized families are conducive for the healthy family functioning in all dimensions; large-sized families were associated with unhealthy and dysfunctional kind of family functioning. Relevantly, while large-family sizes were associated with low family functioning, the medium and smaller ones were preferably ideal for health family functioning like healthy communication, balanced cohesion, and fair share of responsibilities, positive interactions, and fair participations in family issues as the whole.

Thus, it was generally observed that family size had an inverse relationship with patterns of family functioning whereby the larger the family the less cohesive-flexible the functionality will be. So, family size influences negatively the health of the family atmosphere may be because in large-sized families there are always competitions for resources, competitions for gaining attentions from parents, and even competition to express one's feelings becomes high. We are now familiar with the fact that family functioning represents a condition in which a family creates better situations for the development of healthy and mature members (Matejevica *et al.*, 2015). Other scholars point out that it is the ways by which a family solves a problem and responds to the family's challenges (Rahmaninda and Mangunsong, 2019). Still others emphasize that, in realizing the basic family function, the family system must complete a series of tasks, including basic tasks (such as meeting the material needs of the individual in terms of food and clothing living line), developmental tasks (such as adapting and promoting the growth and development of the members) and crisis tasks (such as dealing with all kinds of family emergencies (Dai & Wang, 2015).

Whether family functioning includes creating better conditions, solving family problems or being responsive to the family members' needs or effectively performing any family tasks, they are all, directly or in other way round have something to do with family resources that have

further association with family size. Downey (1995), for instance, suggested that the effect of family size is well explained by Confluence Model justifying that there are always a reverse relationships between family size and child outcomes. This scholar noted that because there is an assumption that familial resources are finite, the model posits that as the number of children in the family increases, the proportion of parental resources accrued by any one child decreases. Where this is the case it becomes difficult to think of balanced family cohesion and flexibility, enthusiastic communication and positive family interaction as the whole. Here, therefore, family size seems to affect child outcomes via influencing the family resources and family's responsiveness to the demands of their members.

Concerning the roles of the relative economic status of the families, it was observed that while no substantial differences in two of the family functions (i.e., cohesion and flexibility) were observed, differences were observed in one of the patterns (i.e., family communication) as a function of the family's economic status, whereby better communication was associated with relatively better economic status than it was for the relatively lower and higher economic levels. This generally implies that while relative economic status had no significant role in the variations of family cohesion and flexibility, it showed significant effects on the family's communication, as some statistical tests showed.

Nevertheless, it was generally observed from mean scores that families with a medium economic level had a better level of functionality in all aspects (i.e., cohesion, flexibility, communication and interaction) than those that fell into lower and higher economic levels. Those families whose relative economic status was medium had generally healthier kinds of family cohesion, family flexibility, positive family communication, and interactions relative to those families whose economic levels were reported to be lower or higher.

In line with this, a study conducted by Wakgari & Belay (2021) revealed that there were statistically significant differences in scores on healthy dimensions of family cohesion and flexibility (i.e., balanced cohesion and balanced flexibility) and family communication across families' relative economic status, favoring those with medium economic status over those with lower or higher economic status. So, tracing that there is a need for further empirical examinations to explain the nature of the association that exists between the patterns of family functioning (i.e., family cohesion, adaptability, communication, and interaction) and the family's relative economic status, Wakgari & Belay (2021) noted that while the healthy or functional aspects of cohesion and adaptability were associated with medium economic status, the unhealthy or dysfunctional ones characterized families with low and high economic status. These authors justify that this happens just because families with lower economic status have lots of worries and stresses that spoil the functionality of the family. On the other hand, families with relatively high economic levels might have quite different kinds of factors (for example, spending time and effort on other matters and businesses at the expense of family time) that hinder the healthy functionality of the family. The scholars therefore clearly pointed out that while the economic stresses seem to have ruined cohesiveness and adaptability in families with low economic status, it can be assumed that priorities might have been given to other issues or businesses than they did to the family issues in families with high economic status affecting the cohesiveness of the family. The other assumption can be the fact that those families who fall into the medium economic status category and whose children label their families as medium ones may be government employees who are educated. As a result, these families have higher levels of family cohesion, flexibility, and positive communication than the rest of the population.

5.5 The relationships & predictive contributions of family functioning to adolescents' self-regulation

5.5.1 The relationships among patterns of family functioning

Initially, the relationships among the major variables of study were examined. To this effect, it was observed that all the patterns of family function had statistically significant positive relationships with each other. This implies that patterns of family functioning are consistently changes with each other. As the result, the more cohesive a family is the more flexible it will be; and the more positive communication it tends to have. Of course positive communication plays a mainstay role in bringing about a cohesive-flexible home environment. This study is consistent with the validation study conducted by Wakgari & Belay (2021). In the study, there were statistically significant positive relationships between the balanced aspects of cohesion, flexibility, family communication and family satisfaction.

More importantly, the relationships that all the patterns of family functioning had with adolescents' self-regulation were statistical positive and significant. To this end, the relationship that family cohesion had with adolescents' self-regulations, the one that family flexibility had with self-regulation, the one that family interaction had with self-regulation, and the one that family communication had with adolescents' self-regulation were statistically significant. Of course, among these all patterns of family functioning family interaction and family communication took the prominence roles than the cohesion and flexibility dimensions. This study was generally consistent with many other empirical works. So because self-regulatory processes basically emerge and develop from the child's interactions with the family (Kim, 2015), functionality of the family has a paramount role in the child outcomes in terms of self-regulation.

5.5.2 The Predictive contributions of patterns of family functioning to self-regulation

Concerning the predictive contributions of patterns of family functioning patterns (i.e., of family cohesion, flexibility, communication and interaction) linear and multiple regressions were computed. To perform this, some of the key preliminary assumptions such as tolerance and variance inflation factors were tested to be accepted. In this case, based on various literatures, preliminary assumptions such as multicollinearity (Schreiber-Gregory & Bader, 2018), autocorrelation (Akinwande *et al.*, 2015), and others were tested to be acceptable to carry out the regression analysis.

For the development of self-regulation (i.e., of children and adolescents), the roles that a family plays (i.e., the functionality of the family) are substantial (Bandzeladze, 2019). This functionality, generally, represents a family's condition, characteristics, and nature of integrations as a holistic unit that has some important patterns such as cohesion, adaptability, communication, and overall interaction determining the development of individual members, mainly adolescents' self-regulation in this context.

Therefore, family factors and socio-cultural variables in Ethiopia and throughout Africa are major stimulants of the development of self-regulatory behavior (Belay et al., 2015), Children's relationships with parents, other caregivers, and their wider surroundings all have a role in determining it (Murray and Rosanbalm, 2017). Supporting this, Neuman (2017) suggests that children are expected, from the sides of their families, to regulate their emotions and behaviors to be functioning members of the family and society.

For this reason, it was recognized in this study that there were significant positive relationships between each of these important patterns of family functioning (i.e., family

cohesion, family flexibility, family communication, and overall family interaction) and self-regulation among the target adolescents. Family cohesiveness significantly influenced adolescents' self-regulation, as demonstrated in the cohesion dimension of the linear regression model, indicating that it substantially predicted this behavior. The model also demonstrated how much of the variance in self-regulation may be attributed to familial flexibility. As a result, several further empirical studies as well as theoretical positions endorsed similar conclusions. For example, when looking at the function of the health aspect of cohesion, in the cohesion dimension, Matejevic *et al* (2014) found that although health functioning was significantly correlated with desirable behaviors, the unhealthy aspect of cohesion was significantly correlated with undesirable outcomes. The scholars pointed out that dysfunctional family cohesion was significantly correlated with the appearance of undesirable behaviors (i.e., those that, of course, emanate from a lack of self-regulation) among adolescents

In other words, it can be justified that a lack of cohesiveness in family functioning results in a lack of regulatory skills that would have protected the adolescents (i.e., that would have helped them regulate their behaviors) from engaging in undesirable behaviors. It has been suggested that a lack of cohesiveness in families (i.e., disengaged families) is characterized by a lack of closeness and connectedness, whereby the members will have no desire to deal with other members, and this condition fails to create conducive family functioning for the positive development of the family members (Matejevic *et al*, 2014) mainly the adolescents' development of self-regulation in our study context). More importantly, in such a less cohesive kind of family functioning, there is a lack of understanding of the adolescents' needs for independence and freedom and a failure to assist in solving the various problems. In such a case, while adolescents look for help and understanding elsewhere, there are tendencies to fall into undesirable behaviors

(i.e., something that comes out of a lack of self-regulation), provided that their family fails to function properly in line with the demands of these adolescents.

In terms of the flexibility component, there are strong causal links between the undesirable pattern of behavior that stems from a lack of self-regulation and a lack of family adaptability or flexibility, which is characterized by a lack of equality in decision-making. In families where there is a lack of flexibility in functionality, there are no opportunities for the healthy development of adolescents. For example, if we consider the existence of strictly defined rules that characterize the rigid pattern of family functioning, it seems to violate the adolescents' aspirations for flexible rules that promote their needs for freedom and independence. Hence, it is a lack of family stability and flexibility that results in frustration, failure to regulate oneself, and involvement in undesirable practices

More crucially, the regression model demonstrated that family communication accounted for a significantly larger amount of the variation or variability in adolescents' self-regulation than did the cohesiveness and flexibility aspects. So, family communication that facilitates healthy functionality in these dimensions (Olson, 2011) has a much more substantial role in the well-being and development of adolescents. Positive and supportive family communication contributes considerably to adolescents' well-being (Jones *et al.*, 2017). Hence, it can generally be concluded that family communication has strong and significant relationships with adolescent outcomes, including their behaviors, emotions, and/or self-regulation overall, whether directly or indirectly. It was generally recognized that even though self-regulation has a strong relationship with all the patterns of family functioning compared to others, the magnitude of its relationship with family communication surpasses the ones it had with the remaining others, implying that, among all, family communication tends to predict adolescents' development of self-regulatory

skills more than other patterns of family functioning such as family cohesion, flexibility, and overall interaction did.

As far as the overall family interaction was concerned, the regression model showed that it had a significant positive correlation and predictive contributions to self-regulation among adolescents. Because scholars confirm that family interactions are important in socializing children and early adolescents to manage anger (Houltberg *et al.*, 2012), it can be concluded that they play substantial roles in determining adolescent self-regulation

The analysis generally revealed that family cohesiveness, flexibility, communication, and interaction, along with other predictor variables, accounted for around seventy-nine percent of the variation in adolescents' self-regulation. As a consequence, the entire regression model strongly predicted adolescents' self-regulation, suggesting that the model produces a notably high degree of outcome variable prediction overall.

5.6 The mediating roles of family characteristic variables in the relationships between patterns of family functioning and self-regulation

The mediation analysis showed that family cohesion and family communication had statistically significant direct effects on the adolescents' self-regulation. However, the flexibility and interaction dimensions didn't show statistically direct effects on self-regulation in this SEM implying that the analysis of their indirect effects becomes inevitable to see the statistical significance. The standard mediation analysis also showed that while in most cases there existed indirect significant effects, the indirect effects were not statistically significant in some cases. To this effect, in the cohesion aspect of family functioning while it's indirect effect via family structure was observed to be statistically significant its indirect effect via family size and

family economic levels were not statistically significant. This implies that while family structure (i.e., nuclear, extended, single-parent homes and child-headed families) mediates the effect of family cohesion on self-regulation, the remaining family characteristic variables (i.e., family size and economic situation) didn't play such a mediating role. The same trend held true to the flexibility aspect of family functioning in that it had an indirect effect on adolescent self-regulation via family structure; whereas the remaining family characteristics were not observed to play such a mediating effect in the relationships under scrutiny.

In communication aspect of family functioning, there were statistically significant indirect effects via family size and family structure. However, such indirect effect was not observed through family's economic status. This implies that while the effect of family communication on adolescents' self-regulation was mediated by family size and family structure, family economic status didn't have such a mediating role in the relationship under consideration. In family interaction the mediating roles of family characteristic variables were not observed to be statistically significant. So the conceptual model initially sketched in this study is observed to be partially confirmed in that two of the family characteristic variables (i.e., family size and family structure) had mediating roles in the relationships between patterns of family functioning and adolescents' self-regulation.

CHAPTER SIX

Summary, Conclusions and Implications

6.1 Summary

This study examined the relationships and predictive contributions of the various patterns of family functioning to the variation in self-regulations among adolescents. Within this framework the study examined a number of specific investigative inquiries including examining the psychometric properties of the patterns of family functioning, describing the nature of family functioning & adolescents' self-regulation, determining variations in the patterns of family functioning across family characteristic variables, and scrutinizing the individual and combined predictive contributions of patterns of family functioning to the variations in self-regulations. More ultimately, depending on empirical evidences the possible intervention strategies that enable us enhance patterns of family functioning have been examined and published (Wakgari, Daniel, & Belay, 2023).

In the study, four categories of families were identified in terms of structure; namely, nuclear families, extended families, single-parent homes, and child-headed families whereby majority fall in the nuclear families followed by extended, single-parent, and child-headed homes. Whether it was men-only-headed or women-headed, the proportion of single-parent home that is relevant to family functioning accounted for nearly one-fifth. While majority of the respondents fall in the middle and low economic level, negligible proportion fall in the high economic level as far as the adolescents' perception of their family's SES was concerned.

Families were observed to have had a minimum of two to a maximum of seven members with a mean size of the families was computed to be 4.96. The proportion of adolescents from large and medium family size surpasses those from small-sized families.

It was determined in this study that majority of the families had generally moderate and moderately high level of family functioning. More importantly, the mean score for adolescent self-regulation showed that most adolescents fall in moderately good level of self-regulation.

The study also showed that there were variations in the composite of all the patterns of family functioning in association with family structures. It was generally determined that high family cohesion, positive communication, higher level of flexibility, and overall interactions were the features of nuclear families than they were for the remaining others, It was therefore confirmed that there are variations in family functioning across family structures favoring nuclear over the non-nuclear ones.

The study also reveals that family size had substantial roles in regulating the functionality of a family in various aspects. Hence, there were differences in the composite of the patterns of family functioning related to family size. The patterns of family functioning were all significantly different for families with different sizes. More importantly, the effect of family size took prominence on family interaction and family communication than it was for cohesion and flexibility implying that family size was an important determinant of the functionality of a family in various dimensions.

While smaller or medium-sized families are conducive for the healthy family functioning in all dimensions; large-sized families were associated with unhealthy and dysfunctional kind of family functioning.

Mixed results were observed with regard to the roles of the relative economic status in that no substantial differences were observed in some cases; whereas the reverse held true to the other cases. In this case, for instance, while economic status had no significant role in the variations of family cohesion and flexibility, it showed significant effects on the family's communication. However, it was understood from the mean scores that those families whose relative economic status was medium had generally healthier kinds of family functioning.

It was observed with the finding that all the patterns of family function had statistically significant positive relationships with each other in that, for example, the more cohesive a family is the more flexible it will be; and the more positive communication it tends to have. Relevantly, family communication seems to play a mainstay role in bringing about a cohesive-flexible home environment. The relationships that all the patterns of family functioning had with adolescents' self-regulation were also significant whereby family interaction and family communication took the prominence roles than the cohesion and flexibility dimensions.

It was recognized that there were significant relationships between each of the patterns of family functioning and self-regulation. Family cohesiveness significantly influenced adolescents' self-regulation, as demonstrated in the cohesion dimension of the linear regression model, indicating that it substantially predicted this behavior. The model also demonstrated how much of the variance in self-regulation may be attributed to familial flexibility.

There were strong causal links between the undesirable pattern of behavior that stems from a lack of self-regulation and a lack of family adaptability or flexibility

The regression model demonstrated that family communication accounted for a significantly larger amount of the variation in adolescents' self-regulation compared to other

patterns of family functioning. It was therefore recognized that even though self-regulation has a strong relationship with all the patterns of family functioning the magnitude of its relationship with family communication surpasses the ones it had with the remaining others. The regression model also showed that family interaction had a significant positive correlation and predictive contributions to self-regulation among adolescents.

Generally, family cohesiveness, flexibility, communication, and interaction along with other predictor variables, accounted for a large proportion of the variation in adolescents' self-regulation. For this reason, it can be summarized that the entire regression model strongly predicted adolescents' self-regulation, suggesting that the model produces a notably high degree of outcome variable prediction overall.

Finally, the mediation analysis performed showed that in the cohesion and flexibility dimension while it's indirect effect via family structure was observed to be significant its indirect effect via family size and family economic levels were not substantial. Hence, family structure mediates the effect of family cohesion and flexibility on self-regulation; whereas, family size and economic situation didn't. The effect of family communication on adolescents' self-regulation was mediated by family size and family structure.

6.2 Conclusions

Although simple category of families in terms of their arrangements or structure consisted of three simple structures: nuclear, single-parent families and extended families in the initial study by Wakgari & Belay (2021), one more category appeared in this case. It is concluded therefore that because family structure may vary from time to time and it varies too across contexts, the fourth category (child-headed family) appeared here. The proportion of the

single-parent homes was not as smaller as one might think as it accounted for about one-fifth of the sample.

As far as the within-family-level variable pertinent to family structure is concerned, some scholars argue that in the earlier decades, with the transformation of social values and norms, family structures became highly varied impacting the family atmosphere as the whole and then the child outcomes. Hence, it became important to scrutinize how families were structured or configured in a variety of ways from time to time.

Families were observed to have had a minimum of two to a maximum of seven members with a mean size of the families was nearly five clearly showing that majority of the families in the study part of Ethiopia are large-sized that has impacts not only on family function but also on resource utilization and life-quality as the whole with a big implications to family planning activities.

It has long been believed that family functioning has a paramount importance because in order to achieve the necessary family outcomes that have a direct link with their child outcomes, it is suggested that researchers and different practitioners need to shift their attention and efforts toward dealing with the families, family issues, family functioning, and family atmosphere as the whole.

The functionality of a family, whether healthy or unhealthy, depend on several factors including family size, family structure or composition, family's relative economic situations, and many others. If we consider the role that family structure plays, for instance, it was generally determined that high family cohesion, positive communication, higher level of flexibility, and overall interactions were the features of nuclear families than they were for the remaining others implying that people are advised to stay intact for the betterment of their family in general and

for the wellbeing of their children in particular. This is the reason why many scholars confirm that there are variations in family functioning across family structures favoring nuclear over non-nuclear families. It has been concluded therefore that the presence of both parents in the family are related to higher levels of emotional or affective bonding that facilitate healthy functionality and further wellbeing.

It was also concluded that family size has substantial roles in regulating the functionality of a family. Thus patterns of family functioning that predict children's wellbeing and self-regulatory skill development seems to differ across family sizes whereby the smaller or medium sizes are always favored over the large-sized ones. It was determined that the effect of family size took prominence on family interaction and family communication than it was for the patterns of family functioning pertinent to cohesion and flexibility. This implies that family size is specially an important determinant of the functionality of a family in terms of communications.

Overall, while relatively smaller or medium sized families are conducive for the healthy family functioning; large-sized families are associated with unhealthy and dysfunctional kind of family functioning. Relevantly, while large-family sizes are associated with low family functioning, the medium and smaller ones are preferably ideal for health family functioning. Family size, therefore, seems to have an inverse relationship with patterns of family functioning whereby the larger the family the less cohesive-flexible the functionality will be.

Family size negatively impacts the health of the family atmosphere may be because in large-sized families there are always competitions for resources, competitions for gaining attentions from parents, and even competition to express one's feelings becomes high. Therefore, whether family functioning includes creating better conditions, solving family problems or being

responsive to the family members' needs or effectively performing any family tasks, they all have something to do with family resources that have further association with family size. It can be concluded, therefore, that family size seems to affect child outcomes via influencing the family resources and family's responsiveness to the demands of their members.

In terms of family's economic status and the effect it has on family functioning inconclusive results are observed in most cases. Even though there were clues that medium economic status has been favored for the health of the family functioning, there is a need for further empirical examinations to explain the nature of the association it has with patterns of family functioning in various contexts.

Because there are direct and positive relationships among the various patterns of family functioning, it has been confirmed that the more cohesive a family is the more flexible it will be; and the more positive communication it tends to have. Of course positive communication plays a mainstay role in bringing about a cohesive-flexible home environment.

For the development of self-regulation, the roles that a family plays (i.e., the functionality of the family) are substantial. It has been justified that lack of cohesiveness in family functioning results in a lack of regulatory skills that would have protected the adolescents from engaging in undesirable behaviors. It has been suggested that a lack of cohesiveness in families is characterized by a lack of closeness and connectedness, whereby the members will have no desire to deal with other members, and this condition fails to create conducive family functioning for the positive development of the adolescents. In a less cohesive family, there is a lack of understanding of the adolescents' needs for independence and freedom and a failure to assist in solving the various problems. As the result, while adolescents look for help and

understanding elsewhere, there are tendencies to fall into undesirable behaviors (i.e., something that comes out of a lack of self-regulation).

Evidences reveal that there are substantial causal links between the undesirable pattern of behavior that stems from a lack of self-regulation and a lack of family functioning pertinent to flexibility. In families where there is a lack of flexibility in functionality, there are no opportunities for the healthy development of adolescents. For example, if we consider the existence of strictly defined rules that characterize the rigid pattern of family functioning, it seems to violate the adolescents' aspirations for flexible rules that promote their needs for freedom and independence. Hence, it is a lack of family flexibility that results in frustration, failure to regulate oneself, and involvement in undesirable practices.

More relevantly, positive and supportive family communication contributes considerably to adolescents' well-being in general and their self-regulation in particular; therefore, it can be concluded that family communication has strong relationships with adolescent outcomes, including their behaviors, emotions, and/or self-regulation overall. It was generally concluded that though self-regulation has a strong relationship with all the patterns of family functioning, the magnitude of its relationship with family communication surpasses the ones it had with the remaining others, implying that, among all, family communication tends to predict adolescents' development of self-regulatory skills much more

Finally, it has been concluded that family characteristic variables play a mediating roles in the relationships between family functioning and adolescent self-regulation. However, this issue requires a further empirical examination.

6.3 Implications for practices

Family is the basic unit of the community, the society and the nation at large. Hence, building the family is to mean that building the society and the nation. For this reason while healthy family atmosphere create health community, society and health nation, the reverse holds true to the unhealthy one. On the other hand, today there are many factors that spoil the health of family in terms of functionality as can be well understood from this study and other empirical sources. For example, family characteristic variables are the factors that determine the health of a family's functionality.

It has to be noted that with the transformation of social values and norms and with the changing technology, these family characteristic variables become highly varied, thus affecting the states of functionality of the family. For example, there have been variations in family structure, types, and economic situations in the last few decades. For this reason, there are more single-parent homes today than ever before. Economic stress (i.e., a lower economic situation) has also put many families under stress leaving big implication for family therapies.

Specifically, if we consider family structure, for example, it affects the functionality of the family. Evidences reveal that it is dynamic that changes from time to time particularly in this time than ever before. Single parenting is becoming common because of the prevailing divorce and family conflicts. And, dysfunctional patterns of functionality (i.e., lack of cohesiveness, flexibility, and communication) are significantly associated with single-parent homes. This single-parenting may emanate from divorce and family conflicts. Furthermore, one of the reasons for family conflict maybe the other familial factor; i.e., family economic situations. While the economic stress that results in the dilution of resources affects the well-being and functionality of

a family in the case of families with lower economic status, it is assumed that priorities might be given to various businesses and issues other than family issues affecting the health of the family in families with higher economic status. When it comes to a family's economic status, therefore, the findings show that unhealthy functionality is more associated with a lower and very high economic status than with a reasonably medium economic status. While the economic stress that results in the dilution of resources affects the well-being and functionality of a family in the case of families with lower economic status, it was assumed that priorities might be given to various businesses and issues other than family issues affecting the health of the family in families with higher economic status. This has generally big implications to family counseling and other related interventions.

Here, therefore, familial factors (i.e., family structure & economic situations) seem to affect the health and the wellbeing of the family in an interwoven manner. The issues of divorce and family conflict that changes the family structure and the wellbeing of the family have big implication to relevant psychological and legal interventions.

Evidence also reveals that family characteristic variable pertinent to family size is one of the within-family-level variables affecting the health of family functioning. To this effect, for example while reasonable family size is associated with health family functioning, large family size results in dysfunctional families. The issues of managing family size have implication to family planning, family policy and strategies.

Despite these all facts, there has been a dearth of studies dealing with family characteristic variables and the direct and indirect impacts of family characteristic variables on patterns of family functioning in Ethiopia. Moreover, there has been a dearth of intervention and family

support programs in our context, leaving big implications for family-related policies and strategies, research, and family counseling activities in general.

On the other hands, it has been understood that patterns of family functioning have strong predictive contributions to the variations in children's developmental and learning outcomes in general and relevantly self-regulator skill development. So understanding these connections has its own implications for intervention practices in that it enables practitioners to always move with the understanding that the ultimate goal of any family-related intervention is the wellbeing of children and adolescents.

In this study, the outcome variable (i.e., self-regulation) is a crucial skill, particularly for adolescents, to adapt to internal and external environmental demands. On the other hand, it has to be noted that adolescence is a transitional period, and thus, for a successful transition, they need a positive family atmosphere and healthy family functioning, including better cohesion (e.g., good family relationships), flexibility (e.g., clear and fair roles, rules, and routines), and positive communications. This suggests that, in theory and practice, harmonious and adaptable family dynamics that promote good communication and general interaction patterns typically support positive development, fruitful teenage functioning, and optimal self-regulation abilities that have big implication to practitioners.

Generally it was well confirmed from this study and other empirical sources that patterns of family functioning (i.e., cohesion, flexibility, communication, and interaction) have both impacts and relations on the development of self-regulation among adolescents. While a well-functioning family promotes desirable outcomes, dysfunctional ones weaken well-being and, relevantly, self-regulation. For this reason, to prevent such undesirable outcomes and to maintain healthy states

of functionality, families should spend time listening to their children's worries, doing things together with them, and providing emotional and informational support to them in general. Above all, families should make efforts to make the overall atmosphere conducive, cohesive, supportive, and interactive to promote the development of self-regulation among their children and adolescents in particular. So as it can be concluded that adolescents from secure, safe, and supportive families have better self-regulation skills than others do, parents and families should make efforts to improve in these dimensions leaving big implication to parenting practices.

When it comes to the particular importance of the communication aspect of family functioning, it is well recognized that positive communication has the potential to build and strengthen the family's cohesiveness and flexibility, as observed from various evidence. For instance, one of the hypotheses of the Circumplex model of marital and family systems is that positive communication skills tend to improve the family's states of cohesion and flexibility. This suggests that to support families in developing their communication skills, the relevant practitioners need to understand that doing so will promote healthier family cohesion and flexibility, which may then enable the family members mostly adolescents to develop a well-adjusted form of self-regulation.

As far as the researcher's readings are concerned, there have been no sources of information, including research findings that deal with the direct relationships between family functioning and adolescents' self-regulation in Ethiopia. Moreover, it has not been an easy job to come across parental or familial-based interventions that focus on the enhancement of family cohesion, adaptability, communication, and/or overall interactions for the ultimate goal of improving adolescents' self-regulation skills. For this reason, it logically makes sense to suggest that prospective research examine whether interventions designed to enhance cohesive-flexible

family functioning and positive family communication can result in the improvement of the family members, mainly the children's and adolescents, levels of functioning, mainly their self-regulation. This means that it remains unknown whether enhancing this positive family functioning (i.e., cohesion, flexibility, communication, and interaction patterns) will in turn bring about improvements in the adolescents' self-regulation skills.

Finally, based on the study findings, it was recommended that professionals, practitioners, and any relevant body design mechanisms consider how to provide appropriate support to the family on the issues of cohesion, adaptability, communication, and positive interactions. In addition, Ethiopian researchers need to expand the scope of their research to include these family functioning aspects. Colleges and universities should also periodically hold scientific conferences on family issues (i.e., on cohesion, flexibility, communication, and interaction) to promote awareness among the counselors and the direct practitioners who work with families of adolescents and to enhance positive functioning among the ultimate beneficiaries (i.e., the children and adolescents). Moreover, establishing various training and home-based family support systems focusing on strengthening family functioning that ultimately benefit adolescents in terms of developing self-regulation may become crucial.

6.4 Limitations and future directions

This study was a correlational study that aimed at examining the existing patterns of family functioning, the relations and predictive contributions to adolescents' self-regulations in Illu Aba Bor Zone, Southwest Ethiopia. The study had various limitations and challenges. One was that the data was collected from the school adolescents, i.e., they were made to fill out the questionnaire representing their families. Even though they are mature members of the family

who can report the family characteristic variables accurately, their perceived responses to the pattern of family functioning may not be accurate as such.

Hence, it would have been good had the researchers visited the family for the patterns of family functioning data. Therefore for the ultimate goal of supporting children and adolescents the future researchers should move to home to gain the necessary data from the horse's mouth rather than basing their studies on perceived responses.

In addition, in some cases, there was a challenge related to reluctance and a lack of interest among the sample adolescents. Although the researcher made efforts to overcome such challenges systematically by seeking better support and cooperation from school directors, future researchers need to plan for more quality data in this theme. Moreover, there might be lots of other family factors other than the one included in this research. Hence, future researchers should design comprehensive family studies in which all the possible within-family variables are treated. Future research could look into various family behaviors through diversified instruments, including interviews, observations, and focus group discussions.

6.5 Original Papers (published and under review)

The following papers are original works that have been born out of this original dissertation work. Three of the papers have been published; and therefore are already referred to in this complete report of the dissertation. In addition the remaining manuscript is under review; and the last one is getting ready to be completed.

Wakgari M. and Belay T. (2021). Validation of Family Adaptability and Cohesion Evaluation Scale (FACES-IV) in Afan Oromo Contexts for Measuring Family Functioning. *East African Journal of Social Sciences & Humanities*, 6 (2) 149-172.
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Wakgari, Daniel, and Belay (2023). Effectiveness of Enhancing Intimacy and Family Interactions through Home-Based Training and Facilitations among Selected Families in Mettu Town. *East African Journal Of Social Sciences and Humanities (EAJSSH)*, Volume 8 (1). DOI: <https://doi.org/10.20372/eajssh.v8i1.622>, Retrieved from: <https://ejsh.haramayajournals.org/index.php/eajsh/article/view/622>

Wakgari Megersa & Daniel Tefera (2025). Family Characteristic Variables and Their Relationships with Family Cohesion, Adaptability, and Communications among Families in Mettu Town, Southwest Ethiopia: From Adolescents view points. *Journal of Science and Sustainable Development (JSSD)*, Vol. 13 (1). Pp143-161, <https://aujssd.ethernet.edu.et/index.php/jssd/article/view/553/196>

Wakgari Megersa & Daniel Tefera, The Predictive Contributions of Family Cohesion, Adaptability, and Communication to Self-Regulation among High School Adolescents in Southwest Ethiopia (under review in JSSD)

Wakgari Megersa & Daniel Tefera, Validation of Self-Regulation Scale for Measuring self-regulatory skills development in the Ethiopian Context (*Manuscript under preparation*).

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APPENDICES

Content Validity Test

Evaluation of the Content Validity of Family Cohesion, Family Flexibility, Family Communication, Family Interaction and adolescent self-regulation Scales to Measure these variables in the Context of Illu Abba Bor Zone, Oromia, Ethiopia.

Dear Experts,

This is a scale prepared to measure family cohesion, family flexibility, family communication, family interaction and adolescents’ self-regulation separately as an independent and dependent variable in the research entitled “Family Functioning and adolescent Self-Regulation Competencies in Illu Abba Bor Zone, Oromia, Ethiopia”. Hence, in order to determine the content validity of the scale for use, it becomes inevitable to organize a panel of experts.

Therefore, this is to request you to rate each of the items in the scale based on its relevance to the construct to be measured by rating “4 if the item is “Highly Relevant”, “3 if it is quite relevant”, “2 if it is Not Relevant” and “1 if it is Entirely Not Relevant” to the construct to be measured”.

Appendix-I Content Validity of Family Interaction Scale

Items	Expert1	Expert2	Expert3	Expert4	Expert5	Expert6		in Experts agreement	I-CVI	UA
Q1	1	1	1	1	1	1		6	1	1
Q2	1	1	1	1	1	1		6	1	1
Q3	1	1	1	1	1	1		6	1	1
Q4	1	1	1	1	1	1		6	1	1
Q5	1	1	1	1	1	1		6	1	1
Q6	1	1	1	1	1	1		6	1	1

Q7	0	1	1	1	1	1		5	0.83	0	
Q8	1	1	1	1	1	1		6	1	1	
Q9	1	1	1	1	1	1		6	1	1	
Q10	1	1	1	1	1	1		6	1	1	
Q11	1	1	1	1	0	1		5	0.83	0	
Q12	1	1	1	1	1	1		6	1	1	
Q13	1	1	1	1	1	1		6	1	1	
Q14	1	1	1	1	1	1		6	1	1	
Q15	1	1	0	1	1	1		5	0.83	0	
Q16	1	1	1	0	1	1		5	0.83	0	
								S-CVI/Ave	0.97	0.81	
Proportion relevance	0.94	1	1	0.94	0.94	1		S-CVI/UA	0.80		
	Average proportion of items judged as relevant across the six experts						0.97				

Appendix-II Content validity of adolescent self-regulation

Items	Expert1	Expert2	Expert3	Expert4	Expert5	Expert6		Experts in agreement	I-CVI	UA
SR-C1	1	1	1	1	1	1		6	1	1
SR-E1	1	1	1	1	1	1		6	1	1
SR-B1	1	1	1	1	1	1		6	1	1
SR-C2	1	1	1	1	0	1		5	0.83	0
SR-E2	1	1	1	1	1	1		6	1	1
SR-B2	1	1	1	1	1	1		6	1	1
SR-C3	1	1	1	1	1	1		6	1	1
SR-E3	1	1	1	1	1	1		6	1	1
SR-B3	1	1	1	1	1	1		6	1	1
SR-C4	1	1	1	1	1	1		6	1	1
SR-E4	0	1	0	1	0	1		3	0.5	0
SR-B4	1	1	1	1	1	1		6	1	1
SR-C5	1	1	1	1	1	1		6	1	1
SR-E5	1	1	1	1	1	1		6	1	1
SR-B5	1	1	1	1	1	1		6	1	1
SR-C6	1	1	1	0	1	1		5	0.83	0
SR-E6	1	1	1	1	1	1		6	1	1
SR-B6	1	0	1	1	1	1		5	0.83	0
SR-C7	1	1	1	0	1	1		5	0.83	0
SR-E7	1	0	1	0	1	1		4	0.66	0
SR-B7	1	1	1	1	1	1		6	1	1
SR-C8	1	1	0	1	1	1		5	0.83	0
SR-E8	1	1	1	1	1	1		6	1	1
SR-B8	1	1	0	1	1	1		5	0.83	0
SR-C9	1	1	1	1	0	1		5	0.83	0
SR-E9	1	1	1	1	1	1		6	1	1
SR-B9	0	1	1	0	1	0		3	0.5	0
SR-C10	1	1	1	1	1	1		6	1	1

SR-E10	1	1	1	1	1	1		6	1	1	
SR-B10	1	1	1	1	1	1		6	1	1	
SR-B11	1	1	0	1	1	1		5	0.83	0	
SR-B12	1	1	1	1	1	1		6	1	1	
								S-CVI/Ave	0.91	0.66	
Proportion relevance	0.94	0.94	0.875	0.875	0.90	0.97		S-CVI/UA			
	Average proportion of items judged as relevant across the six experts						0.91				

SR represents self-regulation, SR-C represents cognitive self-regulation, SR-B represents behavioral aspect of self-regulation, SR-E represents emotional self-regulation and the numbers(i.e., 1,2,3..., for example, SR-C1 represents item/question number)

Here there were two forms of CVI, in which CVI for item (I-CVI) and CVI for scale (S-CVI) were being determined. Two methods for calculating S-CVI, in which the average of the I-CVI scores for all items on the scale (S-CVI/Ave) and the proportion of items on the scale that achieve a relevance scale of 3 or 4 by all the six experts (S-CVI/UA) based on the definition and CVI-calculation formula recommended by Polit & Beck (2006). Of course, before calculating CVI, the relevance scale of 3 or 4 was considered as “1” meaning, generally relevant; whereas the relevance rating of 1 or 2 were considered as “0”, meaning the an item is generally not relevant to the construct to be measured.

Appendix-III Questionnaire (English Version)
Addis Ababa University College of Education and Language Studies
School of Psychology
Questionnaire

Dear respondents, this questionnaire is prepared with the aim of collecting data on Patterns of *Family Functioning and Its Relationships with Adolescents Self-Regulation Competencies in Ilu Aba Bor Zone, Oromia, Ethiopia*. Its ultimate goal is to successfully write a Doctoral Dissertation that will be submitted in Partial Fulfillments of the Requirements for the Degree of Doctor of Philosophy (PhD) in Applied Developmental Psychology.

So, you are required to respond to each of the items in the questionnaire genuinely.

NB: Be informed that there is no RIGHT or WRONG answer. In addition, note that you do not need to write yours and your family head's/parents' names.

Thank you for your cooperation!

Part-I Demographic Information (To be filled by the adolescents)

Direction: Please, respond to the following questions by writing your responses on the space provided or by putting a tick mark (“√”) (where necessary) in the box kept against your choice.

1. Age _____
2. Sex
 - Male
 - Female
3. District (Mettu, Ale, Didu, Becho)
4. School _____
5. Grade level
 - 12th
 - 11th
 - 10th
 - 9th
6. Place of residence
 - Urban
 - Rural

7. Father's education level
- University degree and above
 - Diploma, certificate or equivalent level
 - High school level
 - Primary school level
 - Illiterate (can't write and read)
8. Your mothers' education level
- University degree and above
 - Diploma, Certificate or equivalent level
 - High school level
 - Primary school level
 - Illiterate (can't write and read)
9. Father's occupation
- Government employee
 - NGO employee
 - Private employee (private organizations)
 - Private business owner
 - Farming
 - Daily laborer
 - Other_____
10. Mother's occupation
- Government employee
 - NGO employee
 - Private employee (private organizations)
 - Business owner
 - Farming
 - Daily laborer
 - Other_____
11. Family size (*Number of children*____, *Adult members* ___*total number of family members*_____
12. Family type
- Nuclear (intact)
 - Extended
 - Single
 - Others (Child-headed)_____
13. Family's relative economic status
- High
 - Medium
 - Low

[Scales for Patterns of Family Functioning]

Appendix-III^(a) Family Cohesion scale

Direction: Please answer the questions by circling the response that best describes your family's relationships and emotional bonding. If you "Strongly Disagree" with a statement circle 1; if you "Generally Disagree" circle 2; if you are "Uncertain/Can't Decide" circle 3; if you "Generally Agree" circle 4; and if you "Strongly Agree" circle 5.

Code		Items	Rating				
			1	2	3	4	5
BC-1	1	Family members are involved in each other's lives.	1	2	3	4	5
Dis-1	3	We get along better with people outside our family than inside.	1	2	3	4	5
En-1	4	We spend too much time together.	1	2	3	4	5
BC-2	7	Family members feel very close to each other.	1	2	3	4	5
Dis-2	9	Family members seem to avoid contact with each other when at home.	1	2	3	4	5
En-2	10	Family members feel pressured to spend most free time together.	1	2	3	4	5
BC-3	13	Family members are supportive of each other during difficult times.	1	2	3	4	5
Dis-3	15	Family members know very little about the friends of other family members.	1	2	3	4	5
En-3	16	Family members are too dependent on each other.	1	2	3	4	5
BC-4	19	Family members consult other family members on important decisions.	1	2	3	4	5
Dis-4	21	Family members are on their own when there is a problem to be resolved	1	2	3	4	5
En-4	22	Family members have little need for friends outside the family.	1	2	3	4	5
BC-5	25	Family members like to spend some of their free time with each other.	1	2	3	4	5
En-5	28	We feel too connected to each other.	1	2	3	4	5
BC-6	31	Although family members have individual interests, they still participate in family activities.	1	2	3	4	5
Dis-5	33	Family members seldom depend on each other.	1	2	3	4	5
En-6	34	We resent family members doing things outside the family.	1	2	3	4	5
BC-7	37	Our family has a good balance of separateness and closeness.	1	2	3	4	5
En-7	40	Family members feel guilty if they want to spend times away from the family	1	2	3	4	5

BC (balanced cohesion), En (Enmeshed), and Dis (Disengaged)

Appendix-III (b)-Family Adaptability/Flexibility Scale

Direction: Please answer the questions by circling the response that best describes the amount of change in your family leadership, relationship roles and rules. If you “Strongly Disagree” with a statement circle 1; if you “Generally Disagree” circle 2; if you are “Uncertain/Can’t Decide” circle 3; if you “Generally Agree” circle 4; and if you “Strongly Agree” circle 5.

Code		Items	Rating				
			1	2	3	4	5
BF-1	2	Our family tries new ways of dealing with problems.	1	2	3	4	5
Rig-1	5	There are strict consequences for breaking the rules in our family.	1	2	3	4	5
Cha-1	6	We never seem to get organized in our family.	1	2	3	4	5
BF-2	8	Parents equally share leadership in our family.	1	2	3	4	5
Rig-2	11	There are clear consequences when a family member does something wrong.	1	2	3	4	5
Cha-2	12	It is hard to know who the leader is in our family.	1	2	3	4	5
BF-3	14	Discipline is fair in our family.	1	2	3	4	5
Rig-3	17	Our family has a rule for almost every possible situation.	1	2	3	4	5
Cha-3	18	Things do not get done in our family.	1	2	3	4	5
BF-4	20	My family is able to adjust to change when necessary.	1	2	3	4	5
Rig-4	23	Our family is highly organized	1	2	3	4	5
Cha-4	24	It is unclear who is responsible for things (chores, activities) in our family	1	2	3	4	5
BF-5	26	We shift household responsibilities from person to person.	1	2	3	4	5
Cha-5	30	There is no leadership in our family.	1	2	3	4	5
BF-6	32	We have clear rules and roles in our family.	1	2	3	4	5
Rig-5	35	It is important to follow the rules in the family	1	2	3	4	5
Cha-6	36	Our family has a hard time keeping track of who does various household tasks.	1	2	3	4	5
BF-7	38	When family problems arise, we compromise.	1	2	3	4	5
Cha-7	42	Our family feels hectic and disorganized.	1	2	3	4	5

BF (balanced flexibility), Rig (Rigid), and Cha (Chaotic)

Appendix-III(c)-Family Communication scale

Direction: Please answer the questions by circling the response that best describes the nature of intra-familial communication in your family. If you “Strongly Disagree” with a statement circle 1; if you “Generally Disagree” circle 2; if you are “Uncertain/Can’t Decide” circle 3; if you “Generally Agree” circle 4; and if you “Strongly Agree” circle 5.

	Items	Rating				
		1	2	3	4	5
1	Family members are satisfied with how they communicate with each other.	1	2	3	4	5
2	Family members are very good listeners.	1	2	3	4	5
3	Family members express affection to each other.	1	2	3	4	5
4	Family members are able to ask each other for what they want.	1	2	3	4	5
5	Family members can calmly discuss problems with each other.	1	2	3	4	5

6	Family members discuss their ideas and beliefs with each other.	1	2	3	4	5
7	When family members ask questions of each other, they get honest answers.	1	2	3	4	5
8	Family members try to understand each other's feelings.	1	2	3	4	5
9	When angry, family members seldom say negative things about each other.	1	2	3	4	5
10	Family members express their true feelings to each other.	1	2	3	4	5

Appendix-III (d)-Family interaction observation code

Direction: With the help of this observation checklist, please carefully observe what is going on (i.e., construct, behavior and practical aspect manifestations) in the family while all the family members are gathered. If the specific construct, behavior, or practical aspect of manifestations observed in your family is "Very Low" circle number 1; if it is "Low" circle 2; if "Moderate" circle 4; and if it is "High" circle 5.

1	Negativity and conflict (i.e., family interaction characterized by expressions of tension, frustration, anger, irritation, and hostility)	1	2	3	4	5
2	Positive affect (i.e., family interaction pertinent to positive emotional tone, facial expressions & body language)	1	2	3	4	5
3	Cohesiveness (i.e., family interaction pertinent to sense of unity, togetherness & closeness within a family)	1	2	3	4	5
4	Responsibility for problems/focus of the problem (i.e., family interaction representing how family heads describe a problem; whether they attribute the cause of a problem to a child or take some responsibility for it)	1	2	3	4	5
5	Overall Parenting atmosphere	1	2	3	4	5
6	Alliance formation (i.e., interaction pertinent to the different dyadic relationships in the family)	1	2	3	4	5
7	Marital communication (i.e., family interaction characterized by marital partners' tendency of expressing, disclosing and discussing with each other in a constructive and respectful manner)	1	2	3	4	5
8	Parental rejection and invalidation (i.e., interaction in which cruel, critical, insulting, blaming, unkind, and rude kinds of parents' behaviors are manifested)	1	2	3	4	5
9	Parental coerciveness (i.e., interaction that has threatening, bullying, shaming, embarrassing, or manipulative kind of parents' behaviors in it)	1	2	3	4	5
10	Parental emotional supports (i.e., family interaction emphasizing family heads' ability and sensitivity to recognize and meet the child's emotional needs)	1	2	3	4	5
11	Parental withdrawal (i.e., family interaction that specifically represents the degree to which a family's heads removes him/herself from the interaction or avoids the interaction or discussion)	1	2	3	4	5
12	Anger and frustration of child (i.e., the degree to which anger, frustration, tension, and irritation are expressed by the child through tone of voice, facial expressions, and body language during the interaction)	1	2	3	4	5
13	Sadness of child (i.e., frequency and degree to which children make statements of sadness, sorrow, pain, regret and remorse in the interaction)	1	2	3	4	5
14	Withdrawal of child (i.e., the degree to which a child removes him/herself from the family interaction or avoids the interaction or discussion at all).	1	2	3	4	5
15	Opposition and defiance of child (i.e., the degree to which the child displays oppositional, defiant, or belligerent behavior during interaction)	1	2	3	4	5
16	Positive affect of child (i.e., positive emotion of the child expressed through tone of voice, facial expressions, and body language)	1	2	3	4	5

Appendix-VI Adolescents' self-regulation scale

Direction: Please answer the questions by circling the response that best describes the nature of your self-regulation skills. If you “Strongly Disagree” with a statement circle 1; if you “Generally Disagree” circle 2; if you are “Uncertain/Can’t Decide” circle 3; if you “Generally Agree” circle 4; and if you “Strongly Agree” circle 5.

Items		Items	Rating				
1	SRQ-1(B1)	I have a hard time sitting still during important tasks.	5	4	3	2	1
2	SRQ2 (B2)	It usually becomes difficult for me to stop myself from doing something though I’m sure it is wrong/bad	5	4	3	2	1
3	SRQ3 (B3)	I lose track of my time once caught with entertainment activities like, for example, chatting on facebook	5	4	3	2	1
---	SRQ4 (B4)	Omitted (Low loading value)					
4	SRQ5 (B5)	It is not easy for me to set a limit to some of my behaviors; hence, I overdo when, for example, eating and drinking.	5	4	3	2	1
5	SRQ6 (B6)	I think my behavior is somewhat different from that of other people	5	4	3	2	1
6	SRQ7(B7)	Although no one is watching, I’m confident that I can control any undesirable sexual behavior towards a girl/women	5	4	3	2	1
7	SRQ8(B8)	I am always able to keep or maintain positive relationships with my friends	5	4	3	2	1
8	SRQ9 (B9)	It's hard for me to notice when I've had much alcohol, food, sweets.	5	4	3	2	1
9	SRQ10(B10)	I feel I’m generally obedient to my rules and standards in behaving and doing something	5	4	3	2	1
10	SRQ11(B11)	I doubt I have patience to wait a treatment for longer times without violating my turn.	5	4	3	2	1
11	SRQ12(C1)	It becomes difficult for me to make up my mind about things.	5	4	3	2	1
12	SRQ13(C2)	I’m easily distracted by environmental factors from my activities (e.g., from my study)	5	4	3	2	1
13	SRQ14(C3)	I can rethink about an alternative strategy whenever the way I’m doing fails to work	5	4	3	2	1
14	SRQ15(C4)	It becomes difficult for me to delay my gratification like postponing sexual practices	5	4	3	2	1
	SRQ16(C5)	Omitted (for double loading)					
15	SRQ17(C6)	I think about the future consequences of my decisions and actions.	5	4	3	2	1
16	SRQ18(C7)	I can usually keep track of my progress toward my goals.	5	4	3	2	1
17	SRQ19 (C8)	I can change what I’m thinking about flexibly depending on the demands of my mind like when I need to feel positive or negative	5	4	3	2	1
-----	SRQ20(C9)	Omitted (Low loading value)					
18	SRQ21(C10)	I think I’m able to see tasks through to the end with good attention span		5	4	3	2
19	SRQ22(E1)	I can sooth any undesirable emotions through different strategies.	5	4	3	2	1

20	SRQ23(E2)	I am often getting frustrated when things do not work out as expected.	5	4	3	2	1
21	SRQ24(E3)	I'm easily depressed whenever I fail to accomplish a task	5	4	3	2	1
22	SR25(E4)	I tend to get nervous or clingy in new situations	5	4	3	2	1
23	SRQ26(E5)	I feel I'm often unhappy, down-hearted or tearful	5	4	3	2	1
-----	SRQ27 (E6)	Omitted (Low loading value)					
24	SRQ28 (E7)	I usually get upset easily and explode to people around me	5	4	3	2	1
25	SRQ29(E8)	I am afraid I will lose control over my feelings and emotions	5	4	3	2	1
26	SRQ30(E9)	I think I am considerate of other people's feelings and emotions	5	4	3	2	1

Note: SRQ represents self-regulation question, B-behavioral self-regulation, C-cognitive self-regulation, E-emotional self-regulation, For example, SRQ1 (B1) represents self-regulation question number 1 (i.e., behavioral 1), SRQ18 (C7) refers to self-regulation question number 18 (i.e., cognitive self-regulation number 7)

Appendix-VII (Questionnaire-Afan Oromo Version)

Yuunivarsiitii Finfinnee

Kolleejji Barnootaa fi Qo'annoo Afaanii

Bar-Gaaffii

Kabajamtoota deebistoota bar-gaaffii kanaa, bar-gaaffiin kun kan qophaa'ee mata-duree “Haala Maatiifi Of- qajeelchuu/bituu dargaggootaa Godina Iluu Abbaa Boor keessatti” jedhu ilaalchisee odeeffannoo sassaabuufidha. Kaayyoon isaa inni ijoofi xumuraa Waraqaa Qorannoo Saayikoolojii Dagaaginaatiin Digirii 3ffaa guuttachuuf barreessuudha.

Kanaafuu, tokkoo tokkoon gaaffileetiif amanamummaadhaan deebii keessan kennuutu isinirraa eegama.

Yaadachiisa: Deebii SIRRIIN ykn DOGONGORAA akka hinjirre hubadhaa. Dabaleesimmoo maqaa keessan ykn kan maatii keessanii barreessuun isinirraa hin eegamu.

Deggarsa keessaniif galatoomaa!

Kutaa I-Odeeffannoo Dhuunfaa

Kallatti: *Adaraa keessan bakka duwwaa irratti deebii keessan barreessuudhan yookaan immoo saanduqa filannoowaan cinaatti kaa'aman keessatti mallattoo (“√”)kan kaa'uudhaan gaaffilee armaan gadiitiif deebii kennaa*

14. Umurii_____

15. Saala

- Dhiira
- Dhalaa

16. Aanaa (Mattuu, Aallee, Diiduu, Bachoo)

17. Mana barumsaa_____

18. Kutaa

- 12^{ffaa}
- 11^{ffaa}
- 10^{ffaa}
- 9^{ffaa}

19. Bakka jireenyaa

- Magaalaa
- Baadiyyaa

20. Sadarkaa barnootaa abbaa

- Digirii fi isaa ol
- Dippiloomaa, sartifikeeta ykn isaan qixa
- Barumsaa sadarkaa 2ffaa kan xumure
- Barumsa sadarkaa 1ffaa kan xumure
- Hinbaratne (barreessuu fi dubbisuu hindanda'u)

21. Sadarkaa barnootaa haadhaa

- Digirii fi isaa ol

- Dippiloomaa, sartifikeeta ykn isaan qixa
- Barumsaa sadarkaa 2ffaa kan xumure
- Barumsa sadarkaa 1ffaa kan xumure
- Hinbaratne (barreessuu fi dubbisuu hindanda'u)

22. Dalagaa abbaa

- Hojjetaa Mootummaa
- Hojjetaa Dhaabbata Mit-Mootummaa
- Hojjetaa dhaabbata dhuunfaa
- Abbaa Qabeenyaa “Bizinasii” dhuunfaa ofii
- Qonnaan bulaa
- Hojjeta guyyaa/dafqaan bulaa
- Kanbiraa_____

23. Dalagaa haadhaa

- Hojjetaa Mootummaa
- Hojjetaa Dhaabbata Mit-Mootummaa
- Hojjetaa dhaabbata dhuunfaa
- Abbaa Qabeenyaa “Bizinasii” dhuunfaa ofii
- Qonnaan bulaa
- Hojjeta guyyaa/dafqaan bulaa
- Kanbiraa_____

24. Baay'ina miseensa maatii (baay'ina daa'immanii _____, miseensa maatii ga'eessa ta'e _____, waliigala lakkoobsa miseensa maatii)

25. Akaakuu maatii

- Maatii abbaa fi haati waliin jiraatan
- Maatii bal'aa
- Maatii qofaa (kan abbaa ykn haati qofti jirtu)

26. Sadarkaa dinagdee maatii

- Olaanaa
- Giddu-galeessa
- Gadaanaa

Kutaa-II Gahee/Haala Maatii (Walitti dhihenya/maxxan maatii, dadacha'ina haala gaheefi aangoo maatii, wal-quunnamtii maatii, fi walitti-dhufeenya waliigalaa maatii)

2.1 Safartuu Walitti dhiheenya/maxxana maatii

Kallattii: Adaraa keessan haala walitti-dhiheenyaafi maxxana curaa miseensa maatii keetii kan ibsuu danda'utti maruudhaan deebisi. Haala kanaan, yoo "Cimsitee Mormite" "1"tti, yoo "Akkuma Waliigalaatti Mormite" lakkbsa 2, yoo "Murteessuu hindandeenye" lakkoobsa 3, yoo "Akka waliigalaatti fudhatte" lakkobsa 4, yoo "Cimsitee Fudhatte" lakkoobsa 5tti mari.

	Gaaffilee/Himoota	Sadarkeeffama				
		1	2	3	4	5
1	Miseensotni maatii dhimmoota/jiruufi jireenya/ walii keessatti ni hirmaatu	1	2	3	4	5
3	Namoota miseensota maatii keenyaa ta'an caalaa warreen miseensota matii hintaane waliin walitti dhiheenya qabna	1	2	3	4	5
4	Maatiin keenya yeroo dheeraaf waliin tura/waliin dabarsa	1	2	3	4	5
7	Miseensotni maatii keenyaa baay'ee walitti akka siqan/akka dhiyaatantu itti dhagahama; ykn akkasitti of-hubatu/of-fudhatu.	1	2	3	4	5
9	Miseensonni maatii keenyaa manatti walitti dhiheenya/dhihaachuu kan hinfeene fakkaatu	1	2	3	4	5
10	Maatiin keenyaa yeroo boqonnaasaanii hedduu akka waliin dabarsuuf dirqisiifamaniitti/dhiibamanitti yaadu.	1	2	3	4	5
13	Yemmuu rakkoon mudatu miseensonni maatii waldeggeru	1	2	3	4	5
15	Maatiin hiriyyoota miseensota maatii kanbiraa ilaalchisee hubannoo baayyee gadaanaa ta'e qabu	1	2	3	4	5
16	Miseensotni maatii miira walirratti irkachuu hedduu qabu	1	2	3	4	5
19	Maatiin keenyaa murteewwan barbaachisoorratti miseensota maatii kanbiraa mariissisa	1	2	3	4	5
21	Rakkoowwan furmaata barbaadan yemmuu uumaman miseensonni maatii keenyaa dhuunfaa dhuunfaadhuma ofitiin socho'u	1	2	3	4	5
22	Miseensotni maatii hiriyyoota miseensa maatiinitti hidhaachuuf fedhii baay'ee gadaanaa qabu	1	2	3	4	5
25	Miseensotni maatii yeroo bilisaa/boqonnaasaanii keessaa hanga ta'e waliin dabarsuu jaallatu	1	2	3	4	5
28	Baay'ee walitti akka dhiyaannutti/hidhannetti of-ilaalla/akkasanatti nutti dhagahama/	1	2	3	4	5
31	Tokkoo tokkoon miseensota maatii fedhii dhuunfaa ofii yoo qabaatanillee, garuu dalagaalee manaa keessatti qooda nifudhatu.	1	2	3	4	5
33	Miseensotni maatii darbee darbee qofa malee walirratti hin irkatan	1	2	3	4	5
34	Dalagaa manaa/maatiin alatti miseensi maatii tokko bahee akka hojjetuuf haala ni mijeessina	1	2	3	4	5
37	Maatiin keenya haala walitti-siqinsaa fi addaan bahumsaa walmadaalaa ta'e/madalliisaa eeggate/ qaba	1	2	3	4	5
40	Maatiirraa fagaatanii yeroo ofii dabarsuu yemmuu barbaadanitti miseensonni maatii dhimma kana yaaduu ofiittillee akka dogongoranitti of fudhachuudhaan gaabbu/dhiphatu	1	2	3	4	5

2.2 Haala Dadacha'ina Gahee/aangoo maatii

Kallattii: Adaraa keessan haala dadacha'ina/jijjiiramuu geggeessummaa, qoqqooddaa gaheewwanii, fi seera maatii keetii kan ibsuu danda'utti maruudhaan deebisi. Haala kanaan, yoo "Cimsitee Mormite" "1"tti, yoo "Akkuma Waliigalaatti Mormite" lakkbsa 2, yoo "Murteessuu hindandeenye" lakkoobsa 3, yoo "Akka waliigalaatti fudhatte" lakkobsa 4, yoo "Cimsitee Fudhatte" lakkoobsa 5tti mari

	Gaaffilee/Himoota	Sadarkeeffama				
		1	2	3	4	5
2	Maatiin keenya tooftaalee rakkoo furuu haarawaatti fayyadamuuf yaalii nigodhu.	1	2	3	4	5
5	Maatii keenya keessatti seera cabe tokkoof adabbiin cimaafi siruma dhaabbataa ta'etu jira	1	2	3	4	5
6	Maatii keenya keessatti qindoomina waan qabnu hinfakkaatu	1	2	3	4	5
8	Abbaa fi haati keenya ittigaafatamummaa geggeessummaa maatii walqixa gooddatu	1	2	3	4	5
11	Miseensa maatii waan ta'e dogongoreef/balleesseeff/gatiin/tarkaanfiin fudhatamu ifaa ta'ee kaa'ameera.	1	2	3	4	5
12	Maatii keenya keessatti geggeessaan eenyuun akka ta'eyyuu hubachuuf nama rakkisa	1	2	3	4	5
14	Maatii keenya keessatti haalli naamusaa hanga tokko gaariidha.	1	2	3	4	5
17	Maatiin keenya dhimmoota uumamuu danda'an hundaaf seera mataa ofii kaa'ee jira	1	2	3	4	5
18	Maatii keenya keessatti homtuu hojjetamee/raawwatamee hinmula'tu	1	2	3	4	5
20	Maatiin kiyya yemmuu barbaachisaa ta'ee argametti jijjiirama harawaa tokkotti of-madaqsuu nidanda'a.	1	2	3	4	5
23	Maatiin keenya baay'ee baay'ee qindaawaadha	1	2	3	4	5
24	Maatii keenya keessatti wantoota ykn dalagaalee adda addaatiif eenyu ittigaafatamummaa fudhachuu akka qabu ifaa miti	1	2	3	4	5
26	Ittigaafatamummaa manaa miseensa maatii tokkorraa garabiraatti ni daddabarsina	1	2	3	4	5
30	Maatii keenya keessa geggeessummaan/geggeessaan hinjiru	1	2	3	4	5
32	Maatii keenya keessatti seeraafi gahee ifa ta'e qabna	1	2	3	4	5
35	Maatii keenya keessatti seerota kaa'amanii jiran hordofuun barbaachisaadha.	1	2	3	4	5
36	Eenyu maal maalfaa akka dalagu ilaalchisee hundinuu toora qabatee akka adeemu gochuurratti maatiin keenya rakkoo qaba	1	2	3	4	5
38	Rakkoon maatii gidduutti yemmuu uumamu haala walmadaalaa ta'een waliin hiikna	1	2	3	4	5
42	Maatiin keenya waliindhahamummaa/burjaaja'ummaa fi qindoomina dhabuutu ittihadagahama	1	2	3	4	5

2.3 Haala Wal-quunnamtii Maatii

Kallattii: Adaraa keessan haala walquunnamtii miseensa maatii keetii kan ibsuu danda'utti maruudhaan deebisi. Haala kanaan, yoo "Cimsitee Mormite" "1"tti, yoo "Akkuma Waliigalaatti Mormite" lakkbsa 2, yoo "Murteessuu hindandeenye" lakkoobsa 3, yoo "Akka waliigalaatti fudhatte" lakkobsa 4, yoo "Cimsitee Fudhatte" lakkoobsa 5tti mari

	Items	Rating				
		1	2	3	4	5
1	Miseensotni maatii haala walitti-dhufeenya/quunnamtii isaan gidduu jiru ilaalchisee gammachuu/quufinsa/ qabu	1	2	3	4	5
2	Miseensotni maatii dandeetti waldhaggeeffachuu olaanaa qabu	1	2	3	4	5
3	Miseensotni maatii jaalala waliif qaban ibsachuu nidanda'u	1	2	3	4	5
4	Miseensotni maatii wanta isaan barbaachisu tokko walgaafachuu danda'u	1	2	3	4	5
5	Miseensotni maatii rakkoo tokkorratti tasgabbiidhaan waliin mari'achuu danda'u	1	2	3	4	5
6	Miseensotni maatii yaadaafi amantaa ofiirratti waliin mari'atu	1	2	3	4	5
7	Miseensotni maatii yemmuu wanta ta'e walgaafatan deebii haqaa/deebii qajeelaa/ ta'e walirraa argatu	1	2	3	4	5
8	Miseensotni maatii fedhii/miira walii waliisaani hubachuuf yaalii taassisu	1	2	3	4	5
9	Yemmuu aaranitti, miseensotni maatii waa'ee walii wanta hintaane hinkaasan/hinjedhan	1	2	3	4	5
10	Miseensotni maatii fedhii fi miira ofii isa kessoofi dhugaa waliif ibsu	1	2	3	4	5

2.4 Haala Walitti Dhufeenya Waliigalaa Maatii

Kallattii: “Cheekiliistii’ daawwannaa kanatti fayyadamuudhaan ofeeggannoodhaan wanta maatii keessatti raawwatamu (jechuunis, amaloota, miirota kkf mul’atan) daawwadhu. Yoo wanti ati argitu sun baay’ee gadaanaa ta’e lakkoobsa 1, gadaanaa yoo ta’e lakkoobsa 2, giddugaleessa yoo ta’e lakkoobsa 3, olaanaa yoo ta’e 4, baay’ee olaanaa yoo ta’e 5tti mari

1	Ilaalcha faallaa fi walitti bu’insaa (walittidhufeenya miira yaaddoo/soda, mufannaa, aarii, fi jibba mul’isu)	1	2	3	4	5
2	Jaalala/miira qajeelaa/(walitti dhufeenya curaa qajeelaa kanneen sagaleen, mallattoolee fuulaatii fi qaamaatiin mul’atan)	1	2	3	4	5
3	Walitti hidhannaa/maxxana miiraa/jaalala(miira tokkummaa, miira waloo/waliinummaa fi walittidhiheenya maatii keessaa)	1	2	3	4	5
4	Haala rakkoof ittigaafatamummaa fudhachuu (Akkaataa itti geggeessitoonni maatii tokkoo rakkoo uumame tokko ibsan; madda rakkochaaf daa’imatti quba qabuu ykn ofiifis ittigaafatamummaa fudhachuu maatii ilaallata)	1	2	3	4	5
5	Haala guddisa daa’immanii	1	2	3	4	5
6	Waliigaltee (Walitti dhufeenya/waltumsuu adda addaa miseensota maatii keessatti mul’atu)	1	2	3	4	5
7	Walquunnamtii gaa’ilaa/kan abbaa manaa fi haadha manaa gidduutti mul’atu (Haala yaada ofii ibsachuu fi marii taassisuu kan yaada ijaaraa ofkessaa qabuu fi walkabajuun keessatti calaqqisu)	1	2	3	4	5
8	Daa’imman abbaafi haadhaan tuffatamuu/haasaan isaanii gatii dhabuu (Miira hammeenya, wal arrabsuu, walkomachuu, cilee waldibuu, ofittummaa calaqqisiisuu kan ofkessaa qabu)	1	2	3	4	5
9	Haadhaa fi abbaan sodaachisamuu (Sodaachisa, doorsisa, akka fedhanitti daa’imman oliif gadi oofuu maatiiwaanii)	1	2	3	4	5
10	Gama haadhaa abbaatiin deggersa yaadaa fi curaa argachuu (Dandeettii maatiin fedhii curaa daa’immanii addaan baafachuu fi fedhiwwan kana guutuufii kan ofkeessaa qabu)	1	2	3	4	5
11	Gama haadhaa fi abbaatiin gatamuu/marii keessaa baafamuu (Haala maatiin/geggeessitoonni maatiichaa walitti dhufeenya keessaa adda ofbaasuu kan qabu)	1	2	3	4	5
12	Aarii fi haamilee duubatti deebi’uu daa’immanii(Aarii, mufannaa, soda/yaaddoo, kan daa’imman muli’san kanneen sagalee, mallattoolee fuulaa ykn qaamaarraa beekaman)	1	2	3	4	5
13	Gammachuu dhabuu daa’immanii (Haala daa’imman himoota gadda, gaabbii fi kkf ofkeessa qaban mul’isuusaanii)	1	2	3	4	5
14	Adda ofbaasuu daa’immanii(Haala marii/walitti dhufeenya maatii keessaa qofaatti of-baasuu daa’immanii kan mul’isu)	1	2	3	4	5
15	Ilaalchaa fi gocha faallaa dhiyeessuu fi ajajamuu diduu daa’immanii (Miira mormii mul’issu daa’immanii)	1	2	3	4	5
16	Yaada/jaalala qajeelaa qabaachuu daa’immanii(Miira/curaa qajeelaa daa’immanii kan sagalee, mallattoo fuulaa fi qamaarraa beekamu)	1	2	3	4	5

Part-III Of-to'annaa/of-qajeelchuu-dargaggootaa

Kallattii: Adaraa keessan haala of-toannoo/of-qajeelchuu keessanii ilaalchisee yaada isin ibsuu danda'u sadarkaasaa adda baasuun deebisi. Haala kanaan, hima tokko yoo "Cimsitee Mormite" "1"tti, yoo "Akkuma Waliigalaatti Mormite" lakkbsa 2, yoo "Murteessuu hindandeenye" lakkoobsa 3, yoo "Akka waliigalaatti fudhatte" lakkobsa 4, yoo "Cimsitee Fudhatte" lakkoobsa 5tti mari.

	Himoota/gaaffilee	Sadarkeeffama				
1	Yemmuun dalagaalee barbaachisoo hojjedhu obsaan taa'ee tumuruun natti cima	5	4	3	2	1
2	Gochi tokko gadhee ta'usaallee osoon beekuu garuu irraa ofqusachuun yeroo baayyee natti ulfaata I	5	4	3	2	1
3	Si'a tokko sagantaa bashannanaa fakkeenyaaf kana akka "tapha intarneetii, feebuukii") keessa yoon gale akka salphaatti kallaatii hojii/yeroo biraa dhaba.	5	4	3	2	1
4	Amaloota kiyya tokko tokko ilaalchisee of-daangessuun salphaa naaf hinta'u; kanaafuu waan tokko eegallaan daangaan ala/hanga barbaachisuun olan raawwadha.	5	4	3	2	1
5	Akkan yaadutti amalli kiyya kan warren biroorraa addadha	5	4	3	2	1
6	Yoo namni na argaa hinjirre illee amala saal-quunnamtii kamiinuu dubara tokkorratti akkan hinargisiisne ofittan amana	5	4	3	2	1
7	Hiriyoota kiyya wajjin walitti dhufeenyan qabu haala gaariin ittin fufa.	5	4	3	2	1
8	Yemmuu hedduu dhugaatii, nyaata, ykn wantoota mi'aawoo hedduu fayyadamuu kiyya hinhubadhu	5	4	3	2	1
9	Amala tokko yookaan gocha tokko raawwachuurratti seera mataa kiyyaa nan kabaja jedheen of yaada	5	4	3	2	1
10	Dabaree osoo hincabsin obsaan wanta tokko eeggachuu danda'uu kiyya nan shakka	5	4	3	2	1
11	Waa'ee wantootaa ilaalchisee sammuu koon keessa deebi'ee yaaduun natti ulfaata	5	4	3	2	1
12	Dalagaalee kiyyarra qabattoota naannooti argamaniin akka salphaattan jeeqama.	5	4	3	2	1
13	Kallattiin ittiin waan tokko raawwachaa jiruun yoo naaf milkaa'uubaate filannoo biraan itti adeemuuf nanyaada	5	4	3	2	1
14	Of-gammachiisurraa ofqusachuun yeroo biraatti obsaan dabarsuun natti ulfaata	5	4	3	2	1
15	Waa'ee bu'aa gara fuulduraa murteewwaniifi gochaalee kootii nanyaada.	5	4	3	2	1
16	Yeroo hedduu daandii milkaa'ina kiyyaa kan gara galteetti nageessu gadi hindhiisu	5	4	3	2	1
17	Fedhii sammuu kiyyaarratti hundaa'uudhaan wantan yaadaa jiru tokko haala dadacha'ina qabuun nanjijjiira.	5	4	3	2	1

18	Qalbeeffannaa guutuudhaan hojii tokko hanga dhumaatti keessan baha jedheen of yaada	5	4	3	2	1
19	Tarsiimoowwan garaagaraatti fayyadamuudhaan miirota kiyya qabbaneessuu nandanda'a	5	4	3	2	1
20	Akkan eegetti wanti tokko yoo naaf milkaa'uubaate salphaattan kaka'umsa/haamilee kutadha	5	4	3	2	1
21	Hojii tokko milkeessuu yoon dadhabe akka salphaattan miira mukaa'uu fi abdi kutannaa keessan gala	5	4	3	2	1
22	Dhimmi/wanti haaraan tokko yoo naquunname nanburjaaja'a/nan rifadha	5	4	3	2	1
23	Yeroo hedduu akkan gammachuu hinqabnettan of yaada	5	4	3	2	1
24	Yeroo hedduu namoota naannoo kiyya jiranitti akka salphaattan aara.	5	4	3	2	1
25	Itti-dhagahamaa fi curaa kiyya to'achuurraatti ofin sodaadha.	5	4	3	2	1
26	Itti-dhagahamaa fi curaa namoota biroof iddoo nan kenna jedheen ofyaada	5	4	3	2	1